THE LONGEVITY OF MEMBERS OF CATHOLIC RELIGIOUS SISTERHOODS

A DISSERTATION

Submitted to the Faculty of Philosophy of the Catholic University of America in Partial Fulfillment of Its Requirements for the Degree of Doctor of Philosophy

BY

CONSTANTINE JOHN FECHER

THE CATHOLIC UNIVERSITY OF AMERICA
Washington, D. C.
1927

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PREFACE

The writer wishes to acknowledge his indebtedness to the donors of the Knights of Columbus Scholarship Fund which has made it possible for him to pursue his studies at the Catholic University; to Dr. William H. Davis, Chief Statistician and Elbertie Foudray, Expert Special Agent of the Bureau of the Census and to Dr. Louis I. Dublin, Statistician of the Metropolitan Life Insurance Company for their valuable assistance; to Mr. Louis H. Maier of the Tabulating Machine Company of Washington; and to the many friends who aided him in the numerous details of the study. His obligations are also due Dr. Frederick L. Hoffman, Consulting Statistician of the Prudential Life Insurance Company of America who has given freely of his time and advice.

The writer owes a special indebtedness and desires to express his sincere gratitude to Dr. Frank O'Hara, Dean of the Department of Economics at the Catholic University of America, who suggested the subject and directed its development. He likewise wishes to acknowledge his grateful appreciation of the valuable suggestions made by Dr. Peter Guilday and Dr. William J. Kerby who read the entire manuscript.

Finally, the writer is most grateful for the encouragement and the wholehearted co-operation of the many sisterhoods without which the present investigation would not have been possible. To the Catholic Sisters of America he affectionately dedicates this study.

CHAPTER I

HISTORICAL

Little or no definite information in respect to the longevity of members of religious sisterhoods in the United States is available. Some valuable data was gathered by two authorities in Europe during the 18th and 19th centuries, the Frenchman Déparcieux writing in 1746 and the German Cornet in 1885 on the length of life in convents. While the rates of mortality reported by these early writers are much higher than those prevailing today the figures are of interest in that they permit a comparison of the longevity of the particular religious groups with which they deal and the average lives outside religious communities.

Déparcieux[1] the first of the two authorities mentioned above made a study of the longevity of monks and nuns in 1746, gathering statistics of the lives of Benedictines, Augustinians and other orders in and about Paris. He based his tables on the living and deceased members of those various orders from 1685 to 1745 with the exception of the Benedictine Monks of St. Maur. In the latter case he observed the monks who made their profession from 1607 to 1669 and who died previous to 1745. Déparcieux compared these tables of the lives of monks and nuns with mortality tables of men and women of the world which were available at that time. The table below is compiled from that of Déparcieux and compares the following expectation tables: (1) Table based on the Mortality Records of London by Mr. Smart. (2) Table based on the Mortality Records of Breslau by Mr. Halley. (3) Expectation table of Life Annuitants of some Towns of Holland and other observations by Kerseboom. (4) Expectation of certain Tontine Annuitants. (5) Expectation of members of several religious orders of men who died between 1685 and 1745. (6) And Expectation of members of several religious orders of women who died between 1685 and 1745.

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[1] *Essai sur les probabilités de la durée de la vie humaine,* (Paris, 1746).

COMPARISON OF EXPECTATION OF LIFE

Of Certain Groups Based on Deparcieux, Essai, etc., Paris, 1746

Ages	Based on the mortality records of London by Smart		Based on the mortality records of Breslau by Halley		Based on the experience of Life Annuitants of towns in Holland by Kerseboom.		Based on the experience of Tontine Annuitants of 1689 and 1696		Based on the experience of the members of several religious orders of men who died between 1685 and 1745		Based on the experience of the members of several religious orders of women who died between 1685 and 1745		Ages
	Years	Mo'hs	Years	Mo'hs	Years	Mo'hs	Years	Mo'hs	Years	Mo'hs	Years	Mo'hs	
20	28	11	34	2	36	3	40	3	39	4	40	2	20
25	26	2	30	11	33	3	37	2	35	9	36	8	25
30	23	9	27	11	30	6	34	1	32	2	33	2	30
35	21	6	25	0	28	4	30	11	28	6	29	8	35
40	19	5	22	4	25	6	27	6	24	9	26	3	40
45	17	10	19	8	22	4	23	11	21	5	22	11	45
50	15	10	17	3	19	5	20	5	18	0	19	6	50
55	14	0	14	10	16	9	17	3	15	0	16	3	55
60	12	2	12	5	14	1	14	3	12	3	13	3	60
65	10	2	9	11	11	7	11	3	9	6	10	10	65
70	8	6	7	7	9	2	8	8	7	3	8	5	70
75	6	9	5	7	6	10	6	6	5	3	6	3	75
80	4	8	4	6	5	0	4	8	3	8	4	7	80
85			3	6	3	4	3	2	2	9	3	11	85
90					2	2	1	9	1	10	3	3	90

According to the table above the expectation of the life[2] of the members of orders of religious women is higher at all ages from age 20 to age 50 than the expectations of any other group in the table with the exception of the Tontine Annuitants of 1689 and 1696 who have a slightly higher expectation than the sisters for the entire life period. But Déparcieux states that these Tontine Annuitants are not the most representative group with which to compare the religious. He believes that the group of Life Annuitants of Towns in Holland, observed by Kerseboom is the best general table for comparative purposes. In examining the expectation of life of the group of Kerseboom as compared with that of the religious women in the last column, we find that the religious have a higher expectation from age 20 to age 50 years but lower thereafter to about age 80. This indicates that they had a lower rate of mortality during the period from age 20 to approximately age 50 years but somewhat higher during the next 30 years of the life period, that is, to age 80 years and a lower rate thereafter. The religious orders of men on the other hand show a higher expectation of life to age 35 years only and a considerably lower one during the remainder of the life period as compared with the group of life annuitants observed by Kerseboom (column 3 of the table).

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[2] Expectation of Life is the average length of life in years remaining to each person alive at a certain age.

Casper, a noted German statistician in a work published in 1835[3] compiled the statistics of expectation of life of members of religious orders of men and women gathered by Déparcieux in 1746 into a table showing the relation of the rates of mortality for the two groups. He reduced the original number under observation by Déparcieux to 523 for each sex for comparative purposes. His object in compiling the table from the statistics of Déparcieux was to substantiate his statement that a heavier mortality prevailed generally among men than among women irrespective of their manner and method of living. Beginning at age 20 with 523 living the table below shows the number surviving and the number dying for each quinquennial age period.

[4] NUMBER OF MEMBERS OF RELIGIOUS ORDERS OF MEN AND OF WOMEN SURVIVING AND DYING OUT OF 523 IN EACH GROUP LIVING AT AGE 20.

BY CASPER

Age	Men		Women	
	Surviving	Dying	Surviving	Dying
20	523	..	523	..
25	502	21	503	20
30	480	22	482	21
35	457	23	458	24
40	430	27	434	24
45	400	30	405	29
50	363	37	376	29
55	318	45	339	37
60	268	50	295	44
65	211	57	239	56
70	150	61	183	56
75	90	60	122	61
80	40	50	66	56
85	13	27	22	44
90	2	11	7	15

Thus out of 523 members of religious orders of men alive at age 20 years, twenty-one die before they reach the age of 25 years leaving a total of 502 surviving at age 25. While out of 523 women in religious orders alive at age 20 years, only twenty die before they reach the age of 25 years leaving a total of 503 surviving at age 25. From age 25 to 30, twenty-two of the men die leaving a total of 480 men still living while only twenty-one women die during the same period with 482 of the women still living at age 30, etc. It is of interest that Casper, who in 1835 wished to make comparisons of statistics of longevity of members of religious orders was obliged to refer to those of Déparcieux who wrote in 1746 because of the absence of more recently compiled data.

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[3] *Ueber die Warscheinliche Lebensdauer der Menschen* (Berlin, 1835). p. 67.

[4] *Ibid.*

Coming down nearer to our own time, Dr. William Farr, of the Registrar General's Office, England, was obliged to use Déparcieux's 18th century figures in his study of longevity of religious. In his article on "Marriage and Mortality" in Vital Statistics,[5] he states, "Déparcieux in the middle of the last century (18th century), investigated the relative mortality of monks and nuns in France; and he compared their life with that of Tontine Annuitants, consisting partly of married and partly of unmarried persons. From the age 20 to 40 the mortality of the monks and nuns living in 'single blessedness' was lower, and after the age of 40 it was higher than the mortality of the annuitants. The excess of mortality was considerable in the monks. The condition of these members of religious houses is at all times peculiar, and besides their vows of chastity involved a peculiar discipline likely to affect their lives." He continues, "It is held generally that the suppression of a physiological function is prejudicial to health, which our tables[6] confirm and at the same time qualify."

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[5] Dr. William Farr was the Superintendent of the Statistical Department of the Registrar-General's Office, England from 1838 to 1880. He developed and organized a national system of vital statistics for England which was later adopted by all civilized countries of the world. Excerpts from his many reports and papers on vital statistics were compiled into a volume "Vital Statistics," edited for the Sanitary Institute of Great Britain by Noel A. Humphreys, London, 1885.

[6] Farr compiled tables showing the death rates of married and unmarried people (men and women) in France based on the population of 1851 to support his statement above. He gives the following table to show the relation of the rates of mortality of the married and unmarried women in France in 1851.

Farr apparently falls into error in placing so much reliance upon these century old figures of Déparcieux to support his statement in regard to the effects of celibacy upon longevity. Furthermore, he should have compared the longevity of the religious, not with that of the Tontine Annuitants, who were a select group, but with a representative group like the Annuitants of the Holland towns.

In 1892 the Provincial Board of Health of Ontario in its Eleventh Annual Report gave a synopsis of the study made by the second authority, George Cornet of Berlin, referred to above on page 1, of religious orders (Nursing Orders) in Prussia. However, the translation of the original German work by the Board of Health of Ontario was written in such a manner that one reading the synopsis was placed under the impression that the results obtained by Dr. Cornet from his investigation of members (male and female) of religious houses who cared for the sick (Krankenpflegeorden) was applicable to all cloisters. The reports state, 'The same circumstances (persons spending their time in overcrowded, hot and dusty places indoors) seem to account for the strikingly common occurrence of phthisis in nunneries, seminaries and such institutions' * * *. "Among the latest of such observations are those of Cornet of Berlin." Dr. Cornet's observations as a whole were not of "nunneries" or "seminaries" as such but of religious houses which cared for the sick. If the Board of Health meant the latter institutions by the phrase, "and such institutions" it would have been well to state the real meaning of the term. Again, its translation of the conclusions reached by Dr. Cornet, namely, "From the figures he

RATE OF MORTALITY OF WOMEN IN FRANCE BASED ON THE POPULATION OF 1851.

	Annual Death Rate per 1,000	
Age Interval	**Married**	**Unmarried**
20-25	9.8	8.5
25-30	9.0	9.2
30-40	9.1	10.3
40-50	10.0	13.8
50-60	16.3	23.5
60-70	35.4	49.8

According to this table there is an average yearly death rate of 9.8 per 1,000 married women during the life period 20 to 25 years, while out of a similar number of unmarried women during the same life period the average yearly death rate is only 8.5. But after age 25 years the rate of mortality of the unmarried is higher at all ages.

(Dr. Cornet) draws the conclusion that a healthy girl entering a *sisterhood*[7] at 17 dies 21.5 years earlier than her sister belonging to the general population of the state; and that such an inmate in her twenty-fifth year stands in regard to expectation of life in the same class as a female in the outer world at the age of 55, and a sister of 33 in the same class as a female outside at the age of 62," is a poor translation. The Board of Health version would give one the impression that a healthy girl entering a sisterhood which devotes its time to teaching or any other occupation will experience the same expectation of life as one who enters a sisterhood which cares for the sick. But Dr. Cornet's figures have not to do with religious sisters in general but with sisters who are members of religious houses which care for the sick (Krankenpflegeorden). A reference[8] to the German text will make this clear. Again, the heading of the table on page 30 of the same report (Eleventh Annual Report of the Provincial Board of Health of Ontario) is not a correct translation of the original German work of Dr. Cornet and one who is not familiar with the investigation of Dr. Cornet would place the wrong emphasis on the meaning of the Table. The heading of the table "Number of Deaths from Tuberculosis per 1,000 Population in *Cloisters*[9] in Germany during 25 years" as stated by the Report of the Board of Health of Ontario should read, "Number of Deaths from Tuberculosis per 1,000 Population in Religious Nursing Orders (Krankenpflegeorden) in Germany during 25 Years." The reprint of this investigation by the Provincial Board of Health of Ontario has been quoted extensively in this country and has aided no doubt, to some extent in forming opinions with respect to the longevity of members of religious sisterhoods in the United States.

About 1883 Dr. Georg Cornet of Berlin made his valuable investigation[10] of the mortality of members (male and female) of

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[7] Italics by the present writer.

[8] Nach Tabelle VII nun stirbt ein mit 17 Jahren der Krankenpflege sich widmendes gesundes Maedchen um 21½ Jahre frueher als die gleichaltrige uebrige Bevoelkerung. Eine Krankenpflegerin im 25 Lebensjahre steht mit Beziehung auf die Lebenswartung auf der naemlichen Stufe mit den bereits 58 jaehrigen Personen ausserhalb des Klosters, eine im 33 Jahre gleich den 62 jaehrigen."

[9] Italics by the present writer.

[10] Ueber Tuberculose (Leipsig 1890), p. 161.

Catholic Religious Houses in (Prussia) Germany who cared for the sick (Krankenpflegeorden). He gathered the statistics of mortality from thirty-eight Religious Houses[11] in Prussia, thirty-three of women and five of men, having a yearly average population of 4,028.8 over a period of twenty-five years. The majority of the members of these religious houses devoted themselves to the nursing of the sick with the exception of two houses which contained a majority of members who devoted themselves to the teaching and care of children. Dr. Cornet states that these, the teachers, were predominantly a very small group in the study. We, therefore, at the outset can consider this an investigation of members of religious houses caring for the sick and not an investigation of religious houses generally, as intimated by the Ontario Board of Health report.

The total deaths in Dr. Cornet's study during the twenty-five-year period were 2,099, and 1,320 were of persons who died of tuberculosis. Deaths from tuberculosis are far in excess of all other causes of deaths and make up 62.88 per cent of the total while typhus and typhoid next in prevalency make up 8.23 per cent of the total. A detailed study of the individual communities in the investigation of Dr. Cornet points to the fact that the majority but not all communities had a similar high death rate from tuberculosis. He states that tuberculosis causes 60 to 70 per cent of all deaths in the majority of communities while in a few communities it causes as few as 40 to 50 per cent of all deaths. The reasons for this difference were summed up by him as follows: The numbers of inmates of some communities were too small to give reliable statistical results. Again, a number of these communities conduct hospitals in which there were but a few or no consumptive patients and, therefore, few or no bacilli present. But another reason, he states which is more important to consider and that is, that the nursing of the tuberculous, under all conditions, does not bring with it the same dangers of contagion. He states, it is not the contact with the consumptive, nor the duration or intensity that influences the danger of contagion but it is the manner and method in which they

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[11] A Religious House as defined by Cornet is a congregation of members who go forth from, and are governed by a centrally established motherhouse. This motherhouse keeps a record of its members and of the different places and provinces under its supervision.

(nurses) come in contact with the contagious matter of the consumptive. If the nurses were careful not to come in contact with the contagious matter and to avoid the dust containing the germs, the duties of nursing would not be particularly dangerous.

The following table taken from Cornet's study shows that the mortality of the religious orders caring for the sick (Krankenpflegeorden) was exceptionally high during the period of life from 20 to 50 years and that the principal cause of the high death rate was tuberculosis.[12]

[13] MORTALITY OF CATHOLIC NURSING SISTERHOODS ACCORDING TO SPECIFIC CAUSES AND AGE GROUPS.

In Germany for 25 Years by Cornet.
(Absolute Count)

Cause of Death	Over 15 years and under 20	Over 20 years and under 25	Over 25 years and under 30	Over 30 years and under 40	Over 40 years and under 50	Over 50 years and under 60	Over 60 years and under 70	Over 70 years	Total
Tuberculosis	14	164	348	525	201	43	19	6	1320
Typhoid and Typhus	5	41	54	47	19	10	1	0	177
Small Pox	0	2	8	6	3	0	1	0	20
Cholera	0	2	6	7	1	1	0	0	17
Erysipelas	0	1	3	2	2	1	0	0	9
Cancer	0	0	2	12	15	13	7	1	50
Dropsy	0	1	2	11	9	13	12	6	54
Apoplexy	1	2	0	4	3	11	4	5	30
Lung diseases	1	2	11	14	14	8	16	8	74
Heart diseases	1	7	8	18	20	11	10	2	77
Brain diseases	0	3	1	11	8	2	1	1	27
Kidney diseases	0	1	2	8	5	2	2	1	21
Diseases of the Digestive System	1	4	7	9	15	18	5	0	59
Liver diseases	0	1	2	5	3	4	2	1	18
Rheumatism	0	0	3	3	2	0	2	0	10
Spinal diseases	0	0	5	4	5	1	2	0	17
Gout	0	0	0	1	2	1	0	1	5
Old age	0	0	0	1	0	0	10	17	28
All other	0	12	10	23	20	11	6	4	86
Total Deaths	23	243	472	711	347	150	100	53	2099

Thus out of 243 deaths of persons from 20 to 24 years of age, 164 were caused by tuberculosis while typhus and typhoid the next in rank of the causes, claimed only 41. Among those from 25 to 29 years there were 472 deaths with 348 of them caused by tuberculosis. From age 30 to 39 years tuberculosis caused 525 deaths out of a total of 711 deaths. An examination of the total number of deaths for all ages in the last column of the table above reveals the fact that out of 2,099 deaths, tuberculosis claimed 1,320 or 62.88 per cent of the total. Dr. Cornet shows in this table that the mortality from tuberculosis was predominantly the cause for the high death rate in the cases studied. He stated that the principal basis for this enormously increased mortality among the nursing orders lay without doubt with the nursing of the sick. To further substantiate his conclusions he made a preliminary investigation of twelve Evangelical nursing orders (Deaconesses) in Germany but because of limited data he could give but the following result:

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[12] Little was known concerning the bacillus of the disease during the period under investigation by Cornet.

[13] From Ueber Tuberculose, page 175.

COMPARISON OF DEATHS FROM TUBERCULOSIS WITH TOTAL DEATHS IN TWELVE EVANGELICAL MOTHERHOUSES
(Deaconesses)

BY GEORG CORNET
(Absolute Count)

Evangelical Motherhouses (Deaconesses)	Total Deaths	Deaths from Tuberculosis	Per cent of Tuberculosis to Total D	Withdrawn
No. 1	2	..	....	101
No. 2	32	17	53.14	110
No. 3	6	3	50.00	82
No. 4	9	3	33.33	16
No. 5	3	2	66.66	80
No. 6	7	7	100.00	80
No. 7	14	11	78.57	78
No. 8	4	..	....	167
No. 9	33	12	36.36	243
No. 10	8	3	37.50	?
No. 11	13	10	76.92	?
No. 12	30	19	63.33	7
Total	161	87	54.03	957+?

According to the table above out of a total of 32 deaths in the Motherhouse No. 2, 17 deaths were caused by tuberculosis or 53.14 per cent of the total. Motherhouse No. 3 had three deaths caused by tuberculosis out of a total of six deaths or 50 per cent, etc. The last column, "Withdrawn" indicates the number of members withdrawn during the period. The mortality from tuberculosis among these nursing orders (Deaconesses) is also exceptionally high for it is 54.03 per cent of all causes of death. Dr. Cornet believed that this percentage would yet be greater and similar to the percentage of the Catholic nursing orders if a number of deaconesses had not withdrawn from the order and returned to their families at the inception of the disease.

Reviewing the study made by Dr. Cornet of Religious Houses caring for the sick in Germany, one is impressed with the very high death rate prevailing in these Religious Houses and the exceptionally high mortality from tuberculosis. Comparing the death rate of the nursing orders in the investigation of Dr. Cornet with the death rate of the general population of the State (Prussia) at that time, one finds that the death rate of the nursing orders is exceptionally high. Especially is this true at the ages 15 to 40 where tuberculosis took its toll. But, as Dr. Cornet states, the cause of the enormous death rate lay without doubt with the nursing of the sick. That the conclusions reached by Dr. Cornet are not applicable to the cloisters in general in Germany at the time is without doubt and that the same conclusions are not applicable to the religious sisterhoods in the United States at the present time, general and nursing orders, based on the experiences at that time is also without doubt.

Other studies of death rates of members of religious orders have been made more recently. For example an investigation was made last year of the prevalency of cancer among members of religious orders in England and about the same time a bulletin was published at Milan on the death rates of foreign missionaries based on an inquiry made by the Medical Committee of the Missionary Exhibition of the Vatican. But these figures while of great interest in their special fields can not be used for making comparisons with the tables in the present study and so need not be developed here.

CHAPTER II

GATHERING THE DATA

The present investigation considers members of Catholic Religious Sisterhoods in the United States during the period January 1, 1900 to January 1, 1925. In the aggregate, approximately 35,000 questionnaires were filled out by more than fifty distinct and independent motherhouses.[1] The writer in gathering the data for this report, selected and listed from the Catholic Directory all motherhouses located in the United States having membership of more than two hundred and fifty professed sisters. A personal letter was sent to the mother superior, stating the problem and asking for her cooperation. At the same time other orders voluntarily cooperated or were informed of the study through representatives attending the Sisters College at the Catholic University of America. Not all motherhouses cooperated but the response was generous and the willingness to cooperate came from communities both large and small from all parts of the United States. The writer feels that the sampling process is fairly accurate in giving a true cross-section of the group. Of the 35,000 questionnaires approximately 25,000 received detailed consideration. Of the other ten thousand approximately eight thousand were received too late to be used. Some two thousand were from communities that failed to give complete information, thus necessitating the rejection of all questionnaires from these groups. In the majority of cases the total number of questionnaires for each distinct community was filled out by one or two sisters directly from the records at the motherhouse. This, in the opinion of the writer, was of distinct advantage in securing accuracy in the answers. The questions were for the greater part very completely answered. In a number of cases the specific cause of death was not given. This was especially true of the earlier years of the observation period. On the other hand, in many cases additional remarks were added at the bottom of the questionnaire giving detailed information.

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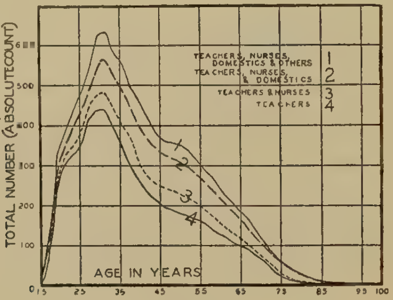
[1] A mother house in the sense above is a centrally established House independent of any other House in the United States and governed by a Mother Superior who directs and cares for the members belonging to it and keeps a record of them and the places and districts under her supervision. The method of division of the Religious Orders of Women in the Catholic Directory was closely followed.

The questionnairs (see specimen on page 54) which represents the life history of each individual under observation gave detailed information in regard to the date of birth, date of entrance into the order, the rate and mode of withdrawal, i. e., whether deceased or still alive, the occupation, the location at which the major portion of conventual life was spent and for the deceased sisters the date and cause of death. The members of these sisterhoods were grouped among the four occupations as follows: Teachers, 61 per cent; nurses, 7 per cent; domestics, 20 per cent, and others, 12 per cent.



GRAPH I

DISTRIBUTION OF SISTERS BY AGES AND OCCUPATION

In the present study the observation period of 25 years is divided into two major divisions: the period from 1900 to 1909 and that from 1910 to 1924. There is also a subdivision of the latter period from 1920 to 1924. A marked decline of the death rate among the population generally in the United States took place about 1910[2] which was influenced to a great extent by the decrease in the deaths caused by typhoid fever, diseases of the digestive system, diptheria and tuberculosis. This decline was due more or less to the pasteurization of milk which was adopted extensively at that time, to the activity of the State boards of health in the study of purification and to sewage treatment and the promulgation of health protective measures to the general public by health organizations. For each of the above three periods rates of mortality and complete expectation of life were worked out for all ages above 20 years for "all" sisters and for teaching sisters. The statistics of causes of deaths were compiled for the three divisions for certain specific causes which were more prevalent than others and whose numbers were sufficient to give reliable statistical results. There is present a source of error in the comparison of the death rates of specific causes of death of the period 1900-1909 and 1910-1924, due to the improvements which have been made yearly in the accuracy of the reported causes of death because of the education of doctors and the changes in the classification of causes of deaths which have been made. The International List of Causes of Death was adopted by the U. S. Bureau of the Census for use in the calendar year 1900[3] but a revision of it was made in January, 1910, bringing about several changes in the classification of the group of diseases. This revision by the Census Bureau might have some influence on the classification of diseases by physicians attending religious communities and should be remembered in comparing the rates for years succeeding 1910 with those preceding.

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[2] Public Health Reports, Vol. 37, No. 33 Aug. 18, 1922 pp. 1981-1991.

The recent improvement in the tuberculosis death rate has had an important influence on the general mortality statistics for the sisters as well as for the country as a whole. According to the statistics of the Bureau of Census the decline in the death rate from tuberculosis began about 1885. It coincides with the discovery of the bacillus of the disease by Robert Koch in 1882. The death rate from tuberculosis declined from 195.2 per 100,000 of the general population of the United States in 1900 to 164.7 in 1910, and to 98.0 in 1924. Dr. Hoffman in his article, "The Tuberculosis Situation in 1924"[4] states, "The decline in tuberculosis is one of the most gratifying evidences of general progress in the health and well being of the American population. . . . It (tuberculosis movement) remains the outstanding public health movement and has to its credit many notable achievements." The similar decrease in the death rate from tuberculosis among the members of religious sisterhoods has been of the greatest importance.

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[3] U. S. Dept. of Labor, Children's Bureau, Maternal Mortality No. 19.

[4] "The Tuberculosis Situation in 1924," The *Spectator* (Dec. 31, 1925).

CHAPTER III

MORTALITY RATE AND EXPECTATION OF LIFE OF SISTERS

The data contained in the responses of the 24,728 questionnaires which were used were tabulated and compiled into life tables showing the death rate and expectation of life at all ages above twenty years. In Table A are grouped various tables showing the death rate and complete expectation of life for comparative purposes. A comparison of these figures will reveal that in general members of Catholic Religious Sisterhoods have a fairly low death rate and may expect to live somewhat longer than the average of women of similar ages in the general population.

Columns 1 and 11 of Table A are headed "age interval" and indicate the age interval to which the figures set in the other columns refer. An age interval may be defined as the period of life time between the exact ages. For example the age interval 20-21 is the year of lifetime between exact age 20 and exact age 21. The beginning of this age interval is at exact age 20, and the interval covers all intervening fractional ages, such as 20¼ years, 20½ years, etc. The age interval 20-21 ends at exact age 21. The rate of mortality or expectation of life in line with the age interval 20-21 refers to the lifetime of any individual between the two exact ages.

In columns 2, 3, 4, and 5, are respectively, the rates of mortality and expectations of life of white males and females of the United States Census 1919-1920. These tables are taken from the Bulletin, United States Abridged Life Tables 1919-1920, prepared by Elbertie Foudray, Expert Special Agent, U. S. Bureau of Census, under the direction of Dr. William H. Davis, Chief Statistician for vital statistics. They are based on the 1920 enumerated population and on the births and deaths which oc-

TABLE A

RATES OF MORTALITY AND EXPECTATIONS OF LIFE

White Males and White Females of the U. S. Census 1919-1920, "All" Sisters for the periods 1910-1924 and 1920-1924, and White Females of the Metropolitan Life Insurance Company, Industrial Department, 1923.

Age Interval	[1] U. S. Census Males (White) 1919-1920		[1] U. S. Census Females (White) 1919-1920		"All" Sisters 1920-1924		"All" Sisters 1910-1924		Metro. Life Ins. Co. Ind. Dept., females, white, 1923.	Age Interval
1	Mortality rate per 1000 2	Expectation of Life 3	Mortality rate per 1000 4	Expectation of Life 5	Mortality rate per 1000 6	Expectation of Life 7	Mortality rate per 1000 8	Expectation of Life 9	Expectation of Life 10	11
20-21					2.72	48.46	3.52	47.21	44.97	20-21
21-22					3.26	47.59	4.09	46.42		21-22
22-23	4.94	43.35	5.42	44.21	4.00	46.74	4.64	45.57		22-23
23-24					4.12	45.91	4.94	44.76		23-24
24-25					4.20	45.11	5.30	43.99		24-25
25-26					4.28	44.31	5.56	43.22	40.95	25.26
26-27					4.35	43.48	5.80	42.47		26-27
27-28	5.79	39.45	6.53	40.46	4.39	42.68	5.98	41.72		27-28
28-29					4.42	41.84	6.12	40.96		28-29
29-30					4.50	41.04	6.32	40.21		29-30
30-31					4.58	40.24	6.40	39.46	36.90	30-31
31-32					4.60	39.40	6.43	38.71		31-32
32-33	6.86	35.62	6.97	36.77	4.75	38.60	6.45	37.96		32-33
33-34					4.86	37.77	6.46	37.19		33-34
34-35					4.96	36.95	6.47	36.43		34-35
35-36					5.08	36.14	6.48	35.67	32.82	35-36
36-37					5.18	35.32	6.53	34.89		36-37
37-38	7.58	31.83	7.02	32.99	5.62	34.51	6.56	34.13		37-38
38-39					6.20	33.70	6.64	33.35		38-39
39-40					6.36	32.91	6.70	32.57		39-40
40-41					6.42	32.12	6.78	31.79	28.79	40-41
41-42					6.48	31.31	6.92	31.00		41-42
42-43	8.65	28.02	7.55	29.11	6.70	30.51	7.06	30.22		42-43
43-44					6.84	29.70	7.36	29.42		43-44
44-45					7.05	28.91	7.74	28.64		44-45
45-46					7.25	28.12	7.82	27.86	24.80	45-46
46-47					7.50	27.35	8.09	27.07		46-47
47-48	10.37	24.23	9.30	25.21	7.70	26.57	8.23	26.29		47-48
48-49					7.90	25.75	8.41	25.49		48.49
49-50					8.10	24.94	8.47	24.71		49-50
50-51					8.30	24.14	8.91	23.93	20.88	50-51
51-52					8.60	23.34	9.05	23.13		51-52
52-53	13.83	20.53	12.40	21.43	9.01	22.54	10.03	22.34		52-53
53-54					9.73	21.74	10.61	21.56		53-54
54-55					10.38	20.94	11.41	20.79		54-55
55-56					11.78	20.15	12.20	20.02	17.23	55-56
56-57					12.96	19.38	13.82	19.27		56-57

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[1] Taken from U. S. Abridged Life tables, 1919-20 (Washington, Government Printing Office, 1923).

Age Interval	[1] U. S. Census Males (White) 1919-1920		[1] U. S. Census Females (White) 1919-1920		"All" Sisters 1920-1924		"All" Sisters 1910-1924		Metro. Life Ins. Co. Ind. Dept., females, white, 1923.	Age Interval
1	Mortality rate per 1000 2	Expectation of Life 3	Mortality rate per 1000 4	Expectation of Life 5	Mortality rate per 1000 6	Expectation of Life 7	Mortality rate per 1000 8	Expectation of Life 9	Expectation of Life 10	11
57-58	20.25	17.06	17.85	17.84	14.69	18.63	14.84	18.53		57-58
58-59					15.99	17.91	16.42	17.81		58-59
59-60					17.36	17.20	17.42	17.09		59-60
60-61					18.85	16.48	19.63	16.37	13.92	60-61
61-62					21.14	15.77	21.73	15.70		61-62
62-63	28.35	13.85	25.26	14.50	23.48	15.12	23.59	15.04		62-63
63-64					25.71	14.50	25.76	14.41		63-64
64-65					25.86	13.84	25.86	13.76		64-65
65-66					26.85	13.19	26.76	13.11	10.88	65-66
66-67					27.83	12.54	28.40	12.45		66-67
67-68	43.10	10.96	39.37	11.49	30.03	11.89	32.15	11.80		67-68
68-69					34.76	11.27	35.67	11.20		68-69
69-70					41.40	10.66	41.97	10.60		69-70
70-71					48.67	10.05	48.18	10.00	8.31	70-71
71-72					53.73	9.55	52.66	9.48		71-72
72-73	65.41	8.49	60.09	8.92	58.72	9.07	58.25	8.97		72-73
73-74					62.60	8.60	62.32	8.50		73-74
74-75					66.34	8.13	66.08	8.03		74-74
75-76					72.22	7.69	72.48	7.56	6.43	75-76
76-77					78.66	7.26	82.48	7.13		76-77
77-78	96.40	6.43	90.10	6.77	84.28	6.85	89.37	6.70		77-78
78-79					95.52	6.49	103.30	6.38		78-79
79-80					112.06	6.13	118.44	6.06		79-80
80-81					116.94	5.77	123.93	5.75	5.00	80-81
81-82					122.50	5.43	130.17	5.47		81-82
82-83	145.98	4.82	135.79	5.08	133.26	5.10	138.41	5.20		82-83
83-84					140.04	4.80	138.63	4.91		83-84
84-85					148.04	4.51	139.60	4.62		84-85
85-86					154.04	4.22	157.73	4.34	3.87	85-86
86-87					160.02	3.87	168.42	4.06		86-87
87-88	203.96	3.59	191.03	3.76	180.23	3.54	185.42	3.78		87-88
88-89					205.16	3.21	200.81	3.54		88-89
89-90					240.08	2.95	215.71	3.30		89-90
90-91					265.32	2.69	225.64	3.06	2.97	90-91
91-92					295.34	2.48	237.51	2.79		91-92
92-93	279.74	2.55	271.33	2.62	325.23	2.31	280.43	2.52		92-93
93-94					343.12	2.19	320.04	2.35		93-94
94-95					360.01	2.08	340.18	2.17		94-95
95-96					375.63	1.93	360.24	2.01	2.20	95-96
96-97					400.42	1.80	386.76	1.86		96-97
97-98					430.31	1.66	412.58	1.71		97-98
98-99					455.17	1.55	450.32	1.52		98-99
99-100					482.09	1.48	480.28	1.45		99-100
100-101					540.21	1.39	530.67	1.37	1.58	100-101

curred during the calendar years 1919 and 1920 in the registration area.[2]

Column 2 under the heading "Rate per 1,000" shows the rate of mortality per one thousand white males at the various age intervals, that is, the number dying in each age interval among 1000 males alive at the beginning of the age interval. For example, in the age interval 22-23 the rate of mortality is 4.94, indicating that of 1000 white males living at the beginning of age 22, 4.94 die during the period of one year, that is, before they reach the age of 23 years. Similarly, of 1000 alive at exact age 27 years, 5.79 die before they reach the age of 28 years. The rate of mortality gradually increases from one age interval to another and at age 37 the rate of mortality is 7.58. At age 42 it is 8.65. At age 47 it is 10.37 or nearly twice the rate at age 27 and so on until about age 80 when the rate of mortality increases rapidly reaching a rate of nearly 280 deaths during the age interval 92-93 among 1000 males alive at exact age 92.

Column 3, entitled "Expectation of Life," expresses the value in years of the complete expectation of life, or the average length of life remaining to each person alive at the beginning of the age interval. For example, the complete expectation of life of a white male in the Registration Area at exact age 22 is 43.35 years. This does not mean that each white male will live 43.35 years beyond age 22, but that the average number of years still to be lived by all white males who have attained age 22 is 43.35. Some will live more than 43 years, some less, but 43.35 is the average. An examination of column 3, shows that the expectation of life decreases as the individual grows older. At age interval 27-28 the expectation of life is 39.45 years or nearly four years shorter than at age interval 22-23 At age interval 32-33 the white male has an average of only 35.62 years more to live, and so on with a gradual decrease throughout life. The individual reaching age 92 years has but 2.55 years as the complete expectation of life. Similarly columns 4 and 5 express the rates of mortality and complete expectation of life respectively of white females.

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[2] The Registration Area includes the New England States, New York, New Jersey, Pennsylvania, Maryland, District of Columbia, Virginia, North Carolina, South Carolina, Tennessee, Kentucky, Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Missouri, Kansas, Utah, California, Oregon, and Washington.

Which rates of mortality are generally lower, those for males or females, and which of the two, males or females have a general higher expectation of life or longer average length of life? Columns 2 and 4, containing rates of mortality for males and for females respectively, show the rates of mortality to be lower for females for practically the entire range of life from age 32 to age 92, while in the earlier ages from 22 to 32 the rates are higher for the females. At age 22 the rate of mortality for males is 4.94 and that of females, 5.42. At age 27 the rates are 5.79 and 6.53 respectively, an increase in the difference between the two rates over that of age 22. But at age 32 the rates are very similar with a slight advantage for the males. The rates of mortality for the intervening age intervals between the quinquennial periods were not obtainable but from the figures given one would assume that the rates of mortality of males and females at age 33 were nearly the same. At age 42 the death rate of males is in excess by slightly more than one per thousand. The difference in the two rates gradually increases thereafter and at age 92 the difference between the rates of mortality of males, 279.74, and that of the females, 271.33, is 8.41. In other words, out of 1000 males and 1000 females alive at exact age 92, 8.41 more males die than females during the succeeding age interval. An examination of columns 3 and 5, headed, "expectation of life," reveals the fact that the females have a higher expectation of life for the entire range of life. At age 22 the average future length of life for the male is 43.35 and for the female 44.21, an advantage of slightly less than one year for the females. A woman at age 27 years will according to the law of averages live one entire year longer than a man of the same age. This advantage of the woman gradually increases with an increase in age until the age of 37 is reached, after which the difference gradually decreases until age 92. At age 92 the average length of life is very nearly the same for both.

To sum up the similarities and dissimilarities in the rates of mortality and expectations of life of white males and females in the Registration Area of the United States for the period 1919-1920, we find that the rates of mortality are lower for females for practically the entire range of life after age 32 with a longer average expected length of life for the females at all ages.

How, now, do rates of mortality and expectations of life of the members of religious sisterhoods compare with those of women not in the convents? Columns 8 and 9 indicate the rate of mortality and expectation of life of "all" sisters in this study during the period from 1910 to 1924. In comparing this group for the period 1910-1924 with white females[3] of the period 1919-1920 it is necessary to keep in mind that the period 1910-1924, irrespective of the group considered, has certain limitations which are to be considered when comparing it with the period of 1919-1920. In the first place the rate of mortality and the expectation of life of the sisters for the period 1910-1924 will be influenced unfavorably by the greater death rate before 1919 but on the other hand they have the advantage of being influenced favorably by the lower death rate after 1920. It is probably true that the higher death rate from 1910 to 1918 influenced the rate of mortality and expectation of life of the period 1910-1924 to a greater extent than the lower death rate from 1921 to 1924. If this fact can be assumed, (and vital statistics of the years before and after the period 1919-1920 support this assumption), the rates of mortality for the sisters in column 8 would be lower and the expectations of life in column 9 higher if the sisters had been observed for the period of 1919-1920 only.

In comparing the rates of mortality of "all" sisters, 1910-1924, in column 8 with the rates of white females of the United States Census, 1919-1920, in column 4, it is seen that the rates of mortality are lower for the sisters at all ages up to age 78, whereas after that point has been reached the white females show a lower death rate. At the age interval 22-23, the rate of mortality of all sisters is 4.64 and that of white females, 5.42. The difference between the two rates is nearly uniform until age 47 when the rate of mortality of the white females increases more rapidly than the rate of "all" sisters. At age 52 the rate of the sisters is 10.03 and that of the white females is 12.40, a difference of

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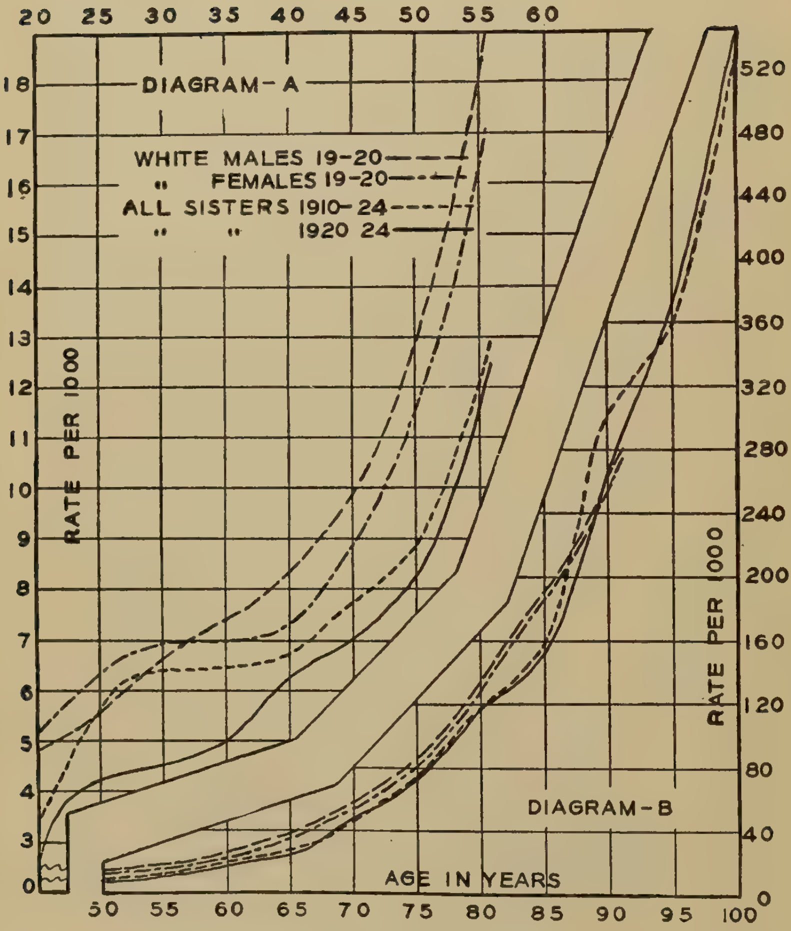
[3] Throughout this study "the period 1910-24" means the period from January 1, 1910 to December 31, 1924, both inclusive. Similarly for "1900-1909" and "1920-1924." "White females" means white females of the U. S. registration area unless the context indicates otherwise.

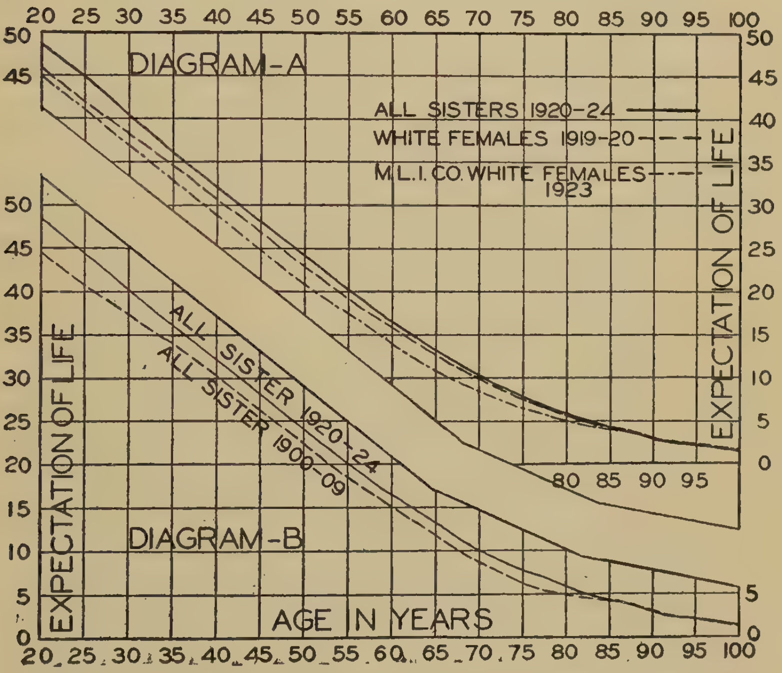


Graph II.—Mortality Rates

Diagram A shows the rate lower at all ages from 20 to 55 for "all" sisters in the 1920-24 period than for "all" sisters in the 1910-24 period. The "all" sisters death rate for the 1910-24 period is lower than the death rate for white females of the registration area in the two years 1919 and 1920 except at ages 24 to about 27. The white females of the registration area have a higher death rate between ages 20 and 32, but a lower death rate after age 32 than the white males of the registration area in the two years 1919 and 1920. Diagram B is a continuation of diagram A. It is drawn on a much smaller scale because of the rapidly increasing death rate and the limitation of space.

2.37 per thousand, while at age 67 there is a difference of 7.22 per thousand. This difference declines rapidly thereafter and at age 78 years the white females have the advantage.

An examination of columns 5 and 9, which give the expectation of life of white females for the period 1919-1920 and "all" sisters for the period 1910-1924 respectively, shows as would be expected from the comparison of death rates in the foregoing paragraph that the sisters have a longer average length of life to look forward to at practically all ages, during the life span from



GRAPH III—COMPARATIVE EXPECTANCIES

The graph above is divided into two parts. In diagram A are compared the expectations of life at the various ages of "all" sisters for the 1920-24 period, white females of the registration area for 1919-20 and the Metropolitan Life Insurance Company white females of the industrial group for 1923. The all sisters line is higher than the others at all ages up to about age 85, indicating their greater longevity. The M. L. I. Co. females have a less favorable expectation throughout.

Diagram B is a separate and distinct chart comparing the expectation of life of "all" sisters for the period 1920-24 with that for the period 1900-1909. The higher line practically at all ages for the 1920-24 period indicates the increased longevity since the earlier period.

22 to 92 years than the white females. There is an exception at the age interval 77-78, where the white females have a slightly longer expectancy, but the difference is so small that its significance is negligible. At age 22 years a white female during the period 1919-1920 has an expectation of living 44.21 years longer, while a sister of the same age during the period 1910-1924 has an expectation of living 45.57 years longer, or an advantage of 1.36 years of additional life. A similar advantage of additional life for "all" sisters is present at all quinquennial age intervals to about age 50 years. This fact is significant when we consider that the white females have been observed for the period 1919-1920 only, while the sisters' rate is reckoned for the long period of 1910-1924, including both the earlier years when the rates of mortality for all groups were much higher and the major year of the influenza epidemic 1918. After age 50 years the difference in the longevity between the two groups gradually decreases until the age interval 87-88 where the chance of living the same number of years for an individual in the two groups is practically the same.

Through the courtesy of Dr. Louis I. Dublin, Statistician of the Metropolitan Life Insurance Company, the writer has been furnished with a table of the expectation of life of white females based on the Industrial Mortality experiences of the Metropolitan for the year 1923. Examining columns 7 and 10 in Table A, we find, that "all" sisters, 1920-1924, have a considerably longer average length of life from age 20 to about age 90 than the white females of the Metropolitan group. A sister of age 20 years during the period 1920-1924 has an advantage of three and one-half years of additional life as compared with a white female of the Metropolitan group of the same age for the year 1923. This difference in the expectation is very uniform until about age 50 years. After age 50 years the difference gradually decreases until about age 90 where the average length of life is practically the same.[4]

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[4] The white females of the Metropolitan table have a death rate similar to white females in the general population for the younger age. The maximum difference is to be found in the age period 55 to 64 years.

Before concluding this chapter, the relation of the death rates of "all" sisters for the period 1920-1924 and the white females of the registration area for the period 1919-1920 should be noted. The rate of "all" sisters, 1920-1924 at age 22 years is 1.42 less per thousand than that of the white females of the same age, 1919-1920. At age 27 the difference in the death rate increases to 2.14 per thousand, at age 32 to 2.22 per thousand and decreases to 1.40 per thousand at age 37 years. The considerable advantage of the sisters during this critical period of life is worthy of note. It is shown in sharp relief in Diagram A, group II on page 20.

CHAPTER IV.

IMPROVEMENT IN THE LONGEVITY OF SISTERS DURING THE QUARTER CENTURY

In the last chapter was noted the relation of the death rates and expectations of life for the various groups; "all" sisters for the two periods 1910-1924 and 1920-1924, the white male and the white female population of the registration area for the period 1919-1920 and the white females of the industrial group of the Metropolitan Life Insurance Company. The lower death rate of the members of religious orders and their longer average expected length of life at practically all ages during the important life period of an individual when compared with the other groups in Table A, is a significant fact and of particular interest. The improved longevity of "all" sisters for the period 1920-1924 over the period 1910-1924, which embodies the former, is an important fact to consider and bears out the conclusions reached by investigations made of other groups that a substantial increase[1] in the life expectation has occurred during the last fifteen years.

In Table B are grouped the rates of mortality and expectations of life for all ages for "all" sisters for the periods 1900-1909, 1910-1924, and 1920-1924 and the rate of mortality only for the entire period of twenty-five years in this investigation, 1900-1924.

In columns 1 and 9 are the age intervals to which the figures set in the other columns refer. The age interval in this table has the same meaning as the age interval of Table A.

Column 2 contains the rate of mortality of all of the sisters in this investigation for the entire period under observation, 1900-1924. Comparing these rates with the rates of mortality for the sisters for the first ten years of the observation period, namely, 1900-1909, we find that the average death rate for the entire observation period is considerably lower at all ages for the entire span of life than the death rate for the first ten years, 1900-1909, with some exceptions which will be noted later. This

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[1] See Appendix A.

TABLE B

RATES OF MORTALITY AND EXPECTATIONS

"All" Sisters in the United States for the periods 1900-1909, 1910-1924 and 1920-1924

ST. FRANCIS SEMINARY SALZMANN LIBRARY

Age Interval 1	'All' Sisters 1900–1924 inclusive Mortality Rate per 1000 2	"All' Sisters 1900–1909 inclusive		"All" Sisters 1910–1924 inclusive		"All" Sisters 1920–1924 inclusive		Age Interval 9
		Mortality Rate per 1000 3	Expectation of life 4	Mortality Rate per 1000 5	Expectation of life 6	Mortality Rate per 1000 7	Expectation of life 8	
20-21	3.87	5.03	44.50	3.52	47.21	2.72	48.46	20-21
21-22	4.65	5.28	43.72	4.09	46.42	3.26	47.59	21-22
22-23	5.12	5.70	42.95	4.64	45.57	4.00	46.74	22-23
23-24	5.26	6.25	42.20	4.94	44.76	4.12	45.91	23-24
24-25	5.97	6.88	41.46	5.30	43.99	4.20	45.11	24-25
25-26	6.38	7.36	40.75	5.56	43.22	4.28	44.31	25-26
26-27	6.44	8.00	40.05	5.80	42.47	4.35	43.48	26-27
27-28	6.68	8.65	39.37	5.98	41.72	4.39	42.68	27-28
28-29	7.20	9.08	38.69	6.12	40.96	4.42	41.84	28-29
29-30	7.29	9.20	37.97	6.32	40.21	4.50	41.04	29-30
30-31	7.43	9.36	37.26	6.40	39.46	4.58	40.24	30-31
31-32	7.43	9.22	36.66	6.43	38.71	4.60	39.40	31-32
32-33	7.63	9.20	36.07	6.45	37.96	4.75	38.60	32-33
33-34	7.28	8.70	35.39	6.46	37.19	4.86	37.77	33-34
34-35	7.12	8.51	34.71	6.47	36.43	4.96	36.95	34-35
35-36	6.99	8.17	33.99	6.48	35.67	5.08	36.14	35-36
36-37	6.93	7.98	33.28	6.53	34.89	5.18	35.32	36-37
37-38	6.88	7.50	32.53	6.56	34.13	5.62	34.51	37-38
38-39	6.84	7.35	31.79	6.64	33.35	6.20	33.70	38.39
39-40	6.86	7.15	31.01	6.70	32.57	6.36	32.91	39-40
40-41	6.87	7.04	30.24	6.78	31.79	6.42	32.12	40-41
41-42	6.90	7.05	29.44	6.92	31.00	6.48	31.31	41-42
42-43	7.02	7.10	28.65	7.06	30.22	6.70	30.51	42-43
43-44	7.34	7.21	27.85	7.36	29.42	6.84	29.70	43-44
44-45	7.54	7.59	27.05	7.74	28.64	7.05	28.91	44-45
45-46	8.00	8.01	26.26	7.82	27.86	7.25	28.12	45-46
46-47	8.20	8.51	25.47	8.09	27.07	7.50	27.35	46-47
47-48	8.22	8.52	24.68	8.23	26.29	7.70	26.57	47-48
48-49	8.44	8.62	23.90	8.41	25.49	7.90	25.75	48-49
49-50	8.61	9.00	23.10	8.47	24.71	8.10	24.94	49-50
50-51	9.06	9.58	22.30	8.91	23.93	8.30	24.14	50-51
51-52	9.56	11.22	21.52	9.05	23.13	8.60	23.34	51-52
52-53	10.82	13.38	20.74	10.03	22.34	9.01	22.54	52-53
53-54	11.31	13.62	20.02	10.61	21.56	9.73	21.74	53-54
54-55	12.27	14.94	19.30	11.41	20.79	10.38	20.94	54-55
55-56	12.88	15.10	18.57	12.20	20.02	11.78	20.15	55-56
56-57	14.08	15.19	17.85	13.82	19.27	12.96	19.38	56-57
57-58	15.46	17.54	17.13	14.84	18.53	14.69	18.63	57-58
58-59	17.18	19.74	16.41	16.42	17.81	15.99	17.91	58-59
59-60	17.94	19.77	15.72	17.42	17.09	17.36	17.20	59-60

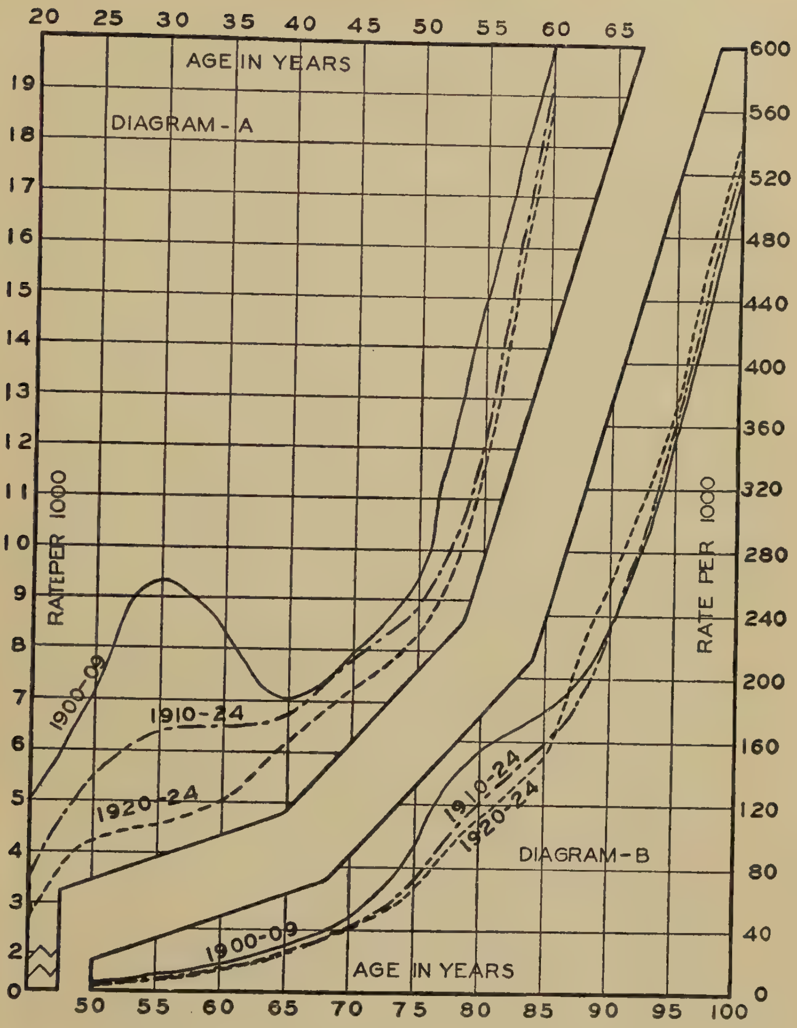
Age Interval 1	"All" Sisters 1900–1924 inclusive Mortality Rate per 1000 2	"All" Sister 1900–1909 inclusive Mortality Rate per 1000 3	"All" Sister 1900–1909 inclusive Expectation of life 4	"All" Sisters 1910–1924 inclusive Mortality Rate per 1000 5	"All" Sisters 1910–1924 inclusive Expectation of life 6	"All" Sister 1920–1924 inclusive Mortality Rate per 1000 7	"All" Sister 1920–1924 inclusive Expectation of life 8	Age Interval 9
60-61	19.68	20.16	15.04	19.63	16.37	18.85	16.48	60-61
61-62	21.60	21.54	14.42	21.73	15.70	21.14	15.77	61-62
62-63	23.08	22.77	13.80	23.59	15.04	23.48	15.12	62-63
63-64	25.42	25.32	13.03	25.76	14.41	25.71	14.50	63-64
64-65	26.04	26.85	12.27	25.86	13.76	25.86	13.84	64-65
65-66	27.92	31.77	11.61	26.76	13.11	26.85	13.19	65-66
66-67	29.50	33.18	10.96	28.40	12.45	27.83	12.54	66.67
67-68	33.34	40.03	10.34	32.15	11.80	30.03	11.89	67-68
68-69	37.64	44.69	9.73	35.67	11.20	34.76	11.27	68-69
69-70	43-60	49.46	9.26	41.97	10.60	41.40	10.66	69-70
70-71	48.50	49.52	8.80	48.18	10.00	48.67	10.05	70-71
71-72	52.48	51.41	8.23	52.66	9.48	53.73	9.55	71-72
72-73	57-98	56.77	7.66	58.25	8.97	58.72	9.07	72-73
73-74	63.90	70.95	7.12	62.32	8.50	62.60	8.60	73-74
74-75	69.66	86.43	6.59	66.08	8.03	66.34	8.13	74-75
75-76	77.26	99.21	6.18	72.48	7.56	72.32	7.69	75-76
76-77	87-62	110.64	5.78	82.48	7.13	78.66	7.26	76-77
77-78	95.48	125.24	5.46	89.37	6.70	84.28	6.85	77-78
78-79	111.66	158.02	5.15	103.30	6.38	95.52	6.49	78-79
79-80	126.93	161.02	5.02	118.44	6.06	112.00	6.13	79.80
80-81	132.76	164.22	4.90	123.93	5.75	116.94	5.77	80-81
81-82	138.06	167.38	4.76	130.17	5.47	122.50	5.43	81-82
82-83	141.42	170.60	4.62	133.41	5.20	133.26	5.10	82-83
83-84	144.00	173.82	4.46	138.63	4.91	140.04	4.80	83-84
84-85	146.56	177.04	4.31	139.60	4.62	148.04	4.51	84-85
85-86	159.98	180.26	4.16	157.73	4.37	154.04	4.22	85-86
86-87	170.66	183.48	4.01	168.42	4.06	160.02	3.87	86-87
87-88	185.84	186.70	3.78	185.42	3.78	180.23	3.54	87-88
88-89	196.76	189.97	3.55	200.81	3.54	205.16	3.21	88-89
89-90	201.66	200.23	3.22	215.71	3.30	240.08	2.95	89-90
90-91	227.62	230.58	2.90	225.64	3.06	265.32	2.69	90-91
91-92	249.16	260.64	2.69	237.51	2.79	295.34	2.48	91-92
92-93	296.70	300.25	2.48	280.43	2.52	325.23	2.31	92-93
93-94	320.04	320.06	2.32	320.04	2.35	343.12	2.19	93-94
94-95	339.13	338.76	2.19	340.18	2.17	360.01	2.08	94.95
95-96	358.05	357.53	2.06	360.24	2.01	375.63	1.93	95-96
96-97	380.00	375.38	1.92	386.76	1.86	400.42	1.80	96-97
97-98	405.23	400.22	1.80	412.58	1.71	430.31	1.66	97-98
98-99	440.65	436.16	1.60	450.32	1.52	455.00	1.55	98-99
99-100	477.25	475.31	1.52	480.28	1.45	482.09	1.48	99-100
100-101	525.28	520.65	1.35	530.67	1.37	540.21	1.39	100-101

fact is significant and indicates that the rate of mortality for the last fifteen years of the observation period, namely, 1910-1924, shows extraordinary improvement over the first ten years.

A comparison of columns 3 and 5 of Table B, the rate of mortality of the period 1900-1909 and of the period 1910-1924 respectively, shows that there has been an extraordinary reduction in the death rate for the last fifteen years from age 20 to approximately age 40, and from age 50 to about age 85, except during the life period from 60 to 64 when the rates are nearly uniform. The rate of mortality at age 20 for the period 1900-1909 is 5.03 per thousand while that of the period 1910-1924 at the same age is 3.52, a decrease of about 1.50 per thousand. At age twenty-five the decrease has become 1.80. At age 30 the difference between the rates 9.36 and 6.40 is nearly 3.00 per thousand. In other words out of 1000 sisters alive at exact age 30 during the period 1900-1909 and 1000 sisters alive at exact age 30 during the period 1910-1924, three more die during the first period than the second. At age 35 the difference has decreased to 1.69. From approximately age 40 to age 50 the rate is nearly uniform with some advantage for the 1910-1924 group except at the ages 43 and 44. There is a slight, probably insignificant, excess rate of the group 1910-1924 over that of the group 1900-1909 at the two ages, 43 and 44. The excess death rate of the 1900-1909 group again reaches approximately two more per thousand during the life period age 50 to 60 years. The similarity of the two death rates from age 60 to 64 is due more or less to the small number under observation in the group 1900-1909 and the reduced death rate of that group is not representative for the group at these ages. It is the opinion of the writer that less importance should be given to the rates for the group 1900-1909 after age 60 because the rates might be exaggerated either one way or the other for the respective age intervals. The tendency of an excess rate for the group 1900-1909 for the life period after age 60 is present but of what importance this excess rate is and what emphasis can be placed upon it is difficult to state without more detailed information in regard to causes of deaths for these specific age intervals. But of what importance is the excess death rate for the period 1900-1909 over the rate for the period 1910-1924 during the life period from age 20 to approximately age 40 years? The rate of mortality line ———————— in Diagram A of Graph IV, page 29, which corresponds to the figures in column 3 of Table B, swings upward, reaching its highest point at age 30 and then gradually descends, reaching a normal level at about age 40. The swinging upward of a rate of mortality line, forming an arched curve of this kind is an abnormal curve and indicates forcibly that there were present some factor or factors affecting the longevity at this life period. What were these underlying factors that caused a greater death rate at age 30 than at age 40 during the first ten years of this investigation but that were remedied and removed to some extent during the last fifteen years and more extensively during the last five years of the investigation 1920-1924? To find the answers to these questions it is necessary to examine the causes of death at these specific ages and note which disease or diseases formed the greater percentage to the total deaths, and showed a diminishing influence as time went on. A discussion of this will be taken up in the chapter dealing with the causes of deaths.

The expectation of life columns 4 and 6, of the two groups just observed give a good picture of the improvement in health that has taken place among the sisters from the first ten years to the last fifteen. The method of measuring the life span by the measuring rod, complete expectation of life, is essentially an accurate one as it applies the actual facts of mortality for the whole span of life. Examining columns 4 and 6 one notes that at age interval 20-21 the average length of life for all sisters for the period 1900-1909 is 44.50 years and for all sisters 1910-1924 is 47.21 years, an advantage of 2.71 years of additional life for the latter period. In other words, a sister of age 20 years living during the period 1910-1924 has an advantage of 2.71 years of additional life, as compared with a sister of the same age during the period 1900-1909. This advantage of additional years for the period 1910-1924 holds true for practically all ages of the life span.

What influence has the last five years of the investigation 1920-1924 had upon the improvement of health with respect to rates of mortality and expectations of life for the period 1910-1924? A comparison of the rates in column 5 and 7 shows that the death rates of the last five years are considerably lower at



Graph IV—Improvement in Death Rate

Diagram A shows the improved death rate of "all" sisters at all ages of the 1920-24 period as compared with the 1910-24 period and the 1900-09 period. The greatest reduction in the death rate from the 1900-09 period to the 1920-24 period occurred between ages 20 to about 40 years with the peak at about age 30.

Diagram B is a continuation of Diagram A. It is drawn on a much smaller scale because of the rapidly increasing death rate after 50 years and the limitation of space.

all ages from age 20 to approximately age 40 years, and no doubt has had much influence in keeping the rate of mortality line ——— - ——— in Diagram A, Graph IV, page 29, which corresponds to the figures in column 5 of Table B, nearly straight instead of giving a small upward swing, forming a slight arch with its peak at age 30 years. A close scrutiny of the death rates in column 5 bears out the statement that the factors causing an excessive death rate from age 20 to 40 during the first ten years 1900-1909 were present to some extent during the earlier years of the period 1910-1924 but because of the influence of the last five years, 1920-1924, the rate of mortality in column 5 remains practically the same at the period surrounding age 30 years. From age 40 to the end of life the rates of mortality for the last five years, 1920-1924, show improvement over those of the period 1910-1924.

A comparison of the expectations of life for the two periods, 1910-1924 and 1920-1924 at age 20 years shows an increase of 1.25 years of additional life for the period 1920-1924. The advantage of additional life for the latter period exists for practically all ages for the entire range of life.

Before concluding this chapter on the improvement of health of "all" sisters during the last twenty-five years in respect to rate of mortality and expectation of life it is important to examine columns 3, 4, and 7, 8, the rate of mortality and expectations of life of "all" sisters, 1900-1909, and "all" sisters, 1920-1924, respectively. An examination of the rates of mortality reveals the fact that there has been an extraordinary reduction in the death rates from age 20 to approximately age 40 years during the period 1920-1924 as compared with the period 1900-1909, the greatest reduction being at age 30 years. The rate of mortality at age 30 for the period 1900-1909 is 9.36 and that of the period 1920-1924 is 4.58, or a reduction of 4.78 per thousand. The death rate has been reduced more than one-half at this specific age. What has been added to the average length of life during this same period? Comparing columns 4 and 8, one finds that the average future length of life for a sister age 20 years during the period 1920-1924 is 48.46 years while that of a sister of the same age for the period 1900-1909 is 44.50 years, an addition of nearly four years to the life span at age 20.[2] This i significant when we compare this increase in the life expectation of a sister at age 20 with the increase in the life expectation of white females of age 22 of the registration area of the United States from the period 1901-1910 to the period 1919-1920 of 1.38 years. That is, the life expectation of a white female of age 22 years of the registration area of the United States for the period 1901-1910 was 42.83 years while for the period 1919-1920, 44.21 years. The above comparison of "all" sisters with the white females must be modified to some extent because of factors influencing each, that is, period of years considered, occupations, prevalency of certain diseases, etc.

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[2] See Diagram B, chart III, Page 21.

In order to note what influence the reduced death rate from age 20 to 40 has had upon the increase in the life expectation of sisters, we should examine the expectation of life at age 20 and 40 years for both periods and see what relation exists between the two. The expectations of life at age 20 and at age 40 years for the period 1900-1909 are 44.50 and 30.24 years respectively, a difference of 14.26 years. The expectation of life at age 20 and at age 40 years for the period 1920-1924 are 48.46 and 32.12 respectively, a difference of 16.34 years. Comparing these two differences, 16.34 years and 14.26 years, we find that the addition of slightly more than two (2.08) years of the total increase of four years to the expectation at age 20 was caused by the improvement during the life period from 20 to 40 years.

CHAPTER V.

MORTALITY RATES OF TEACHING SISTERS

In table C are grouped the rates of mortality of the teaching sisters and "all" sisters for the entire period 1900-1924; the rates of mortality of the teaching sisters and "all" sisters for the first ten years of the investigation, 1900-1909; and the rates of mortality and expectations of life of the teaching sisters and "all" sisters for the last fifteen years of the investigation 1910-1924 for all ages from age 20 years to 60 years.

In columns 1 and 12 of Table C are the age intervals to which the figures in the other columns refer.

An examination of columns 2 and 3, the rates of mortality of the teaching sisters, 1900-1924, and "all" sisters, 1900-1924, respectively, reveals the fact that the death rates of "all" sisters are uniformly lower at all ages during the important period of the life span excepting the two age intervals 20-21 and 21-22. These two age intervals will be considered later in the chapter. The teaching sisters show an excess death rate of from 0.25 to 0.75 more per thousand than "all" sisters. This means that the death rates of the sisters in the other occupations in this study are lower for the period 1900-1924 than the rates indicated in column 3—the rate of mortality of "all" sisters 1900-1924—since these death rates have been influenced by the higher death rates of the teaching sisters.

The rates of mortality just considered were the average death rates for the entire period of this investigation for the two groups, teaching sisters and "all" sisters. What influence has the death rate of the teaching sisters for the period 1900-1909 had upon the death rates of the same group for the entire period 1900-1924? By comparing columns 4 and 2, the death rates of the teaching sisters for the periods 1900-1909 and 1900-1924 respectively, it will be seen that the death rates for the former period are considerably higher during the life period age 20 to age 36 years; and approximately uniform rate from age 36 to

TABLE C

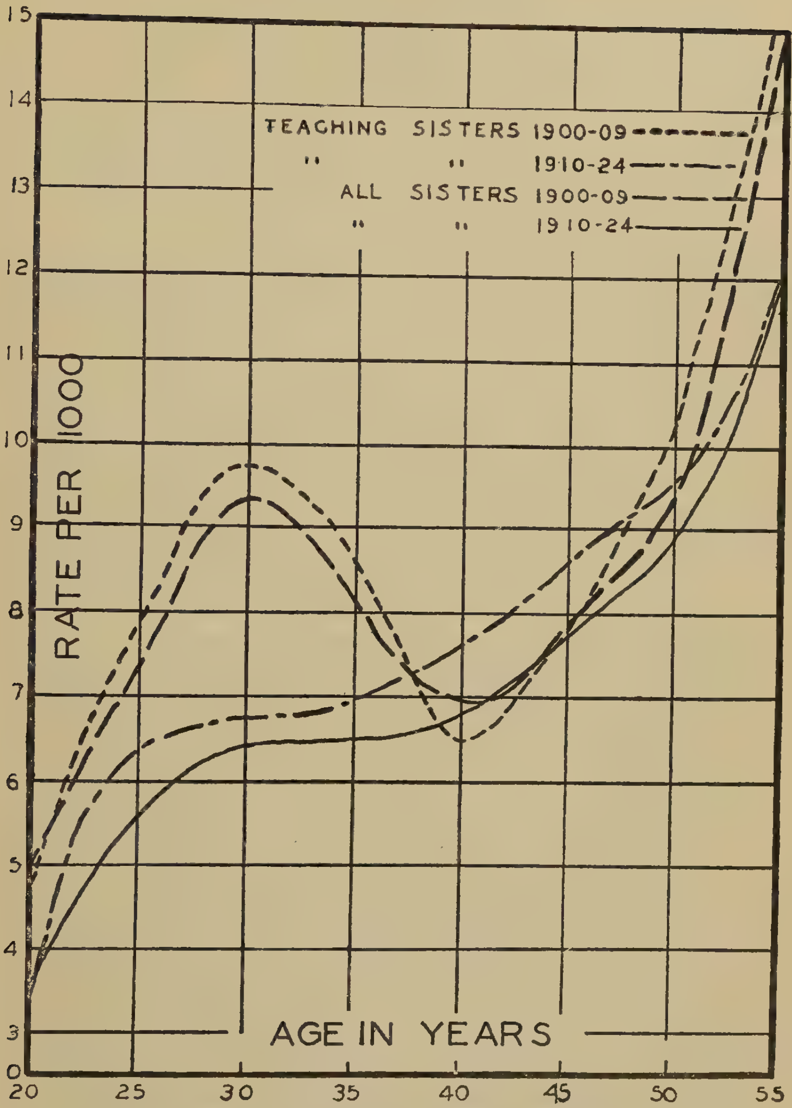
RATES OF MORTALITY AND EXPECTATIONS OF LIFE
"All" Sisters and Teaching Sisters for the Periods 1900-1924, 1900-1909, 1910-1924
And White Females of the U. S. Census 1919-1920.

Age Interval (1)	Teaching Sisters 1900-24 Mortality Rate per 1000 (2)	"All" Sisters 1900-24 Mortality Rate per 1000 (3)	Teaching Sisters 1900-09 Mortality Rate per 1000 (4)	"All" Sisters 1900-09 Mortality Rate per 1000 (5)	Teaching Sisters 1910-1924 Mortality Rate per 1000 (6)	Teaching Sisters 1910-1924 Expectation of Life (7)	"All" Sisters 1910-1924 Mortality Rate per 1000 (8)	"All" Sisters 1910-1924 Expectation of Life (9)	U. S. Census, Females White, 1919-1920 Mortality Rate per 1000 (10)	U. S. Census, Females White, 1919-1920 Expectation of Life (11)	Age Interval (12)
20–21	3.75	3.87	4.82	5.03	3.51	46.59	3.52	47.21			20–21
21–22	4.51	4.65	5.23	5.28	3.98	45.73	4.09	46.42			21–22
22–23	5.27	5.12	5.96	5.70	4.86	44.93	4.64	45.57	5.42	44.21	22–23
23–24	5.66	5.26	6.78	6.25	5.36	44.23	4.94	44.76			23–24
24–25	6.42	5.97	7.36	6.88	6.24	43.38	5.30	43.99			24–25
25–26	6.86	6.38	7.94	7.36	6.32	42.65	5.56	43.22			25–26
26–27	6.93	6.44	8.78	8.00	6.44	41.91	5.80	42.47			26–27
27–28	7.16	6.68	9.12	8.65	6.60	41.18	5.98	41.72	6.53	40.46	27–28
28–29	7.48	7.20	9.46	9.08	6.70	40.43	6.12	40.96			28–29
29–30	7.63	7.29	9.60	9.20	6.78	39.71	6.32	40.21			29–30
30–31	7.74	7.43	9.76	9.36	6.80	38.99	6.40	39.46			30–31
31–32	7.82	7.43	9.80	9.22	6.82	38.24	6.43	38.71			31–32
32–33	7.88	7.63	9.72	9.20	6.85	37.51	6.45	37.96	6.97	36.77	32–33
33–34	7.70	7.28	9.46	8.70	6.87	36.76	6.46	37.19			33–34
34–35	7.59	7.12	9.14	8.51	6.89	36.01	6.47	36.43			34–35
35–36	7.46	6.99	8.62	8.17	7.02	35.27	6.48	35.67			35–36
36–37	7.36	6.93	8.04	7.98	7.21	34.51	6.53	34.89			36–37
37–38	7.16	6.88	7.18	7.50	7.32	33.76	6.56	34.13	7.02	32.99	37–38
38–39	7.10	6.84	6.80	7.35	7.44	32.87	6.64	33.35			38–39
39–40	7.00	6.86	6.48	7.15	7.50	32.00	6.70	32.57			39-40
40–41	6.92	6.87	6.30	7.04	7.58	31.45	6.78	31.79			40–41
41–42	7.00	6.90	6.26	7.05	7.60	30.55	6.92	31.00			41–42
42–43	7.25	7.02	6.56	7.10	7.62	29.96	7.06	30.22	7.55	29.11	42–43
43–44	7.62	7.34	6.96	7.21	8.02	29.19	7.36	29.42			43–44
44–45	8.03	7.54	7.46	7.59	8.43	28.42	7.74	28.64			44–45
45–46	8.43	8.00	7.84	8.01	8.82	27.65	7.82	27.86			45–46
46–47	8.61	8.20	8.16	8.51	8.92	26.96	8.09	27.07			46–47
47–48	8.80	8.22	8.64	8.52	9.31	26.29	8.23	26.29	9.30	25.21	47–48
48–49	8.96	8.44	8.90	8.62	9.51	25.52	8.41	25.49			48–49
49–50	9.04	8.61	9.28	9.00	9.58	24.76	8.47	24.71			49–50
50–51	9.28	9.06	10.42	9.58	9.60	24.00	8.91	23.93			50–51
51–52	9.37	9.56	11.64	11.22	9.62	23.22	9.05	23.13			51–52
52–53	10.71	10.82	12.80	13.38	10.13	22.45	10.03	22.34	12.40	21.43	52–53
53-54	11.32	11.31	13.98	13.62	10.96	21.66	10.61	21.56			53-54
54–55	12.51	12.27	15.02	14.94	11.60	20.88	11.41	20.79			54–55
55–56	13.48	12.88	15.54	15.10	12.51	20.10	12.20	20.02			55–56
56–57	14.67	14.08	15.94	15.19	14.82	19.38	13.82	19.27			56-57
57–58	15.85	15.46	16.32	17.54	15.08	18.66	14.84	18.53	17.85	17.84	57–58
58–59	17.37	17.18	21.38	19.74	16.22	17.94	16.42	17.81			58–59
59–60	18.60	17.94	21.70	19.77	17.44	17.23	17.42	17.09			59–60
60–61	19.78	19.68	22.06	20.16	19.13	16.52	19.63	16.37			60–61

48, and again higher from age 48 to age 60. This reduced death rate for the whole period 1900-1924 in comparison with the first ten years, indicates a considerable reduction of the death rates for the last fifteen years of this investigation, a condition which is fully corroborated by the figures in column 6 of Table C. The most important of these three life periods mentioned above is the period from age 20 to age 36 years. During these years the greatest difference between the two death rates is found at age 30. The rate of mortality at this age for the teaching sisters for the period 1900-1909 is 9.76 while that for the period 1900-1924 is 7.74, or an excess of 2.02 per thousand for the period 1900-1909. The arched curve of the line - - - - - - - - - - -. Diagram A, Graph V, on page 35, which corresponds to the figures in column 4 of Tables C, points to the fact that from ages 20 to 36 years for the period 1900-1909 the rate was abnormal. This is similar to the abnormal death rate for "all" sisters during the same period (a matter discussed in the previous chapter), and points very forcibly to the fact that there were present factors influencing the death rate during this critical life period.

Examining the death rates in columns 4 and 5, the teaching sisters 1900-1909 and "all" sisters 1900-1909 respectively, one finds that the teaching sisters have a uniformly higher death rate at all the ages from 22 to 37 years, while from age 37 to 46 "all" sisters show higher rates.

Since the health of "all" sisters improved considerably from the period 1900-1909 to the period 1910-1924 one would assume that a similar improvement took place among the teaching sisters, since the teaching sisters make up more than three-fifths of the total number in the investigation. A comparison of the death rates in columns 4 and 6, teaching sisters 1900-1909 and teaching sisters 1910-1924, respectively, supports this assumption. Examining the difference of the two mortality rates, one finds that the reduction in the death rate takes place from age 20 to age 37 years with the greatest reduction at age 30 years. That is, the death rate of the teaching sisters at age 30 years for the period 1900-1909 is 9.76 while that for the teaching sisters at the same age for the period 1910-1924 is 6.80 per thousand or a reduction in the death rate of 2.96 per thousand. This reduction corresponds to the similar reduction of 2.79 per thousand for "all" sisters at the same age from the period 1900-1909



Graph V—Mortality of Teaching Sisters

In Graph V the death rate is higher at all ages from 22 to 55 for the teaching sisters in the 1900-09 period than for "all" sisters in the same period except at ages 37 to about 44. While for the period 1910-24 the death rate of the teaching sisters is higher at all the ages after 22 years. The higher mortality lines of the teaching sisters for both periods indicate the influence of the death rate of the teaching sisters upon the death rate of "all" sisters.

to the period 1910-1924. This extraordinary reduction of the death rate of the teaching sisters during the earlier period of life from the first ten years of the investigation to the last fifteen, indicates that the factors causing the excessive death rate for the period 1900-1909 were eliminated to some extent during the last period 1910-1924. A discussion of these factors will be given in the chapter, "Causes of Death."

An examination of the rates of mortality of white females 1919-1920, column 10, and the rates of mortality of teaching sisters 1910-1924 in column 6 points to a slightly higher rate for the teaching sisters from the quinquennial age interval 27-28 to the age interval 47-48 with the exception at the age interval 32-33 where the teaching sisters have a slight advantage. It would be interesting to know just what influence the earlier years of the period 1910-1924 and the major year of the influenza epidemic, 1918, had upon this excess rate of the teaching sisters. From the age interval 47-48 to the age interval 57-58 the teaching sisters have a comparative lower death rate per one thousand than the white females. The average length of life of the teaching sisters for the period 1910-1924 is longer at all quinquennial age intervals than that of the white females for the period 1919-1920.

The teaching sisters who make up about 61% of "all" sisters in this investigation show somewhat different rates of mortality and expectations of life for the period 1910-1924 from those of the entire group of sisters, 1910-1924, which includes the teaching sisters. The rate of mortality and expectation of life for the teaching sisters, 1910-1924, are in columns 6 and 7 respectively. Comparing the rates of mortality of the teaching sisters, 1910-1924, in column 6 with the rate of mortality of "all" sisters, 1910-1924, in column 8, we find that the rates of mortality of the teaching sisters are uniformly higher at practically all ages during the life period from age 22 to age 60 years. The teaching sisters have a slight advantage at ages 20 and 21. To get a better picture of the relation of health of the teaching sisters with "all" sisters we should compare columns 7 and 9, the expectations of life of the teaching sisters and "all" sisters respectively. Grouped in the table below are the expectations of life of "all" sisters and of the teaching sisters at selected ages showing the advantage in years of the one group in comparison with the other for the period 1910-1924.

LIFE EXPECTANCY OF "ALL" SISTERS AND TEACHING SISTERS
At Selected Ages for the Period 1910–1924

Ages	Life Expectancy in Years: "All" Sisters	Life Expectancy in Years: Teaching Sisters	Advantage in Years of "All" Sisters
20	47.21	46.59	+0.62
22	45.57	44.93	+0.64
25	43.22	42.65	+0.47
30	39.46	38.99	+0.47
35	35.67	35.27	+0.40
40	31.79	31.45	+0.34
45	27.86	27.65	+0.21
50	24.00	23.93	+0.07
55	20.02	20.10	—0.08
60	16.37	16.52	—0.15
65	13.11	13.19	—0.08

The age 22 was inserted to show that there was a greater advantage in years for "all" sisters at this age than at age 20 years.

According to this table "all" sisters have an advantage of 0.64 year of additional life at age 22 years while at age 50 years the expectancy of the two groups is approximately the same and at age 60 years the teaching sisters have an advantage of 0.15 year of additional life. The fact that the teaching sisters have a shorter expectancy of life from age 22 to age 50 years than "all" sisters but a similar or slightly higher expectation after age 50 indicates that the death rate of the teaching sisters is higher from age 22 to approximately age 50 years but after that it is similar to, or slightly lower than that of "all" sisters. Again, as was indicated in the preceding paragraph, the teaching sisters have a lower death rate at ages 20 and 21 years than "all" sisters for both periods 1900-1909 and 1910-1924. Since the average age of sisters entering the communities is 19 years, the two ages 20 and 21 belong to the selection period.[1] In other words, there are fewer deaths during this period of religious and professional preparation among the younger sisters who prepare for the teaching profession than among the others of the same age whose cares and duties are of quite another nature. But when these days are over and the scholastic goes into active service, there is, as Dr. George E. Johnson points out in his article, "The Nun in Education,"[2] perhaps too much burning of the candle at both ends, and the result, a higher death rate at all ages during the important life period. The work of a teaching sister is not confined to eight or nine months of the year with a summer vacation of three or four months, which is, in many cases, the general rule of women teachers in the world, but usually twelve months of great activity. Dr. Johnson in his article states, "Summer vacation is at hand. What does it mean to the nun today in the United States? There is scarcely a sister in active service who will not attend a summer school of some sort. . . . . . By all the laws of nature they should be tired out after a hard year. If they are they do not show it. After the summer school, a refreshing of the soul in the waters of a spiritual retreat—then September and the class room once more. Perhaps they should be restrained a bit. Perhaps there is too much burning of the candle at both ends."

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[1] By selection period, we mean the period of time at which a life, newly selected or examined, by a sisterhood has less chance of dying within one year because of selection than another life of the same age not selected or examined.

A detailed study of the cause of this higher death rate of teaching sisters during this life period of greatest economic value to the religious communities and to society in general is given in the following chapter.

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[2] The Commonweal, August, 1926.

CHAPTER VI.

Causes of Death

In the foregoing chapters has been noted the death rate of the sisters and their expectation of life at the various ages for the three major divisions of the observation period: 1900-1909, 1910-1924 and 1920-1924. The uniformly longer average length of life of the sisters at practically all the ages during the important life period of an individual for our three observation periods, when compared with the white females of the general population of the United States is significant. The improvement of the health of "all" sisters from the first ten years of the entire observation period to the last five years is extraordinary. Within the last quarter of a century an addition of nearly four years has been made to the expectancy of life of the sister at age 20 years. But of the total increase of four years of additional life at age 20, two years of the increase were the direct result of the reduced mortality during the period of life from age 20 to age 40 years. What was the factor influencing the high death rate from age 20 to age 40 years of the period 1900-1909 which was eliminated to some extent during the period 1920-1924? The answer, unquestionably, is the enormously high tuberculosis death rate during the first ten years. The table below, "Death Rate from Tuberculosis (all forms)" of "all" sisters in the United States for the periods 1900-1909, 1910-1924 and 1920-1924, points to the extraordinary decline of the death rate caused by tuberculosis from age 20 to 40 years from the period 1900-1909 to the period 1920-1924.

For example, among "all" sisters at the age period 20-24 for the observation period 1900-1909 the death rate from tuberculosis is 3.12 per 1000 while for the period 1920-1924 it is reduced to 2.48 or a reduction of 0.64 per thousand. At the age period 25-29 an extraordinary reduction of 3.04 per 1000 or a decline in the death rate of 56.9 per cent is observed, and at the age period 30-34 there is a smaller but still a remarkable reduction

DEATH RATE PER 1000 FROM TUBERCULOSIS (ALL FORMS)
Of "All" Sisters in the United States
By Age Groups for periods, 1900-1909, 1910-1924 and 1920-1924.

Age Groups	15-19 years	20-24 years	25-29 years	30-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75 years and over
1900–09	1.15	3.12	5.34	4.94	3.17	1.59	2.04	2.55	2.40
1910–24	1.25	2.77	3.45	2.99	2.56	1.56	1.17	1.79	3.12
1920–24	1.12	2.48	2.30	2.34	1.91	1.17	1.49	1.78	2.13

of 2.60 per 1000 or a decline of 52.6 per cent. Graph IX exhibited on page 46, shows the above reduction in sharp relief. To further support the statement that the increase of two years, which has been added to the life span of "all" Sisters, during the life period 20 to 40 years from the first ten years to the last five years of this investigation, is due to a great extent to the reduction of the death rates from tuberculosis, the following table was compiled from the figures given in Table B on page 25, and from the figures quoted above.

MORTALITY OF "ALL" SISTERS PER 1000 FROM ALL CAUSES
At selected ages for the periods
1900–1909 1920–1924

Ages	Death Rate 1900–1909	Death Rate 1920–1924	Reduction in Death Rate from all auses per 1000	Reduction in Death Rate from Tuberculosis per 1000 during the same period
22	5.70	4.00	1.70	0.64
27	8.65	4.39	4.26	3.04
32	9.20	4.75	4.45	2.60

At age 22 the reduction in the death rate from all causes of death from 1900-1909 to 1920-1924 is 1.70 per thousand while tuberculosis accounts for 0.64 of it or more than one-third of the reduction. At age 27 the reduction of the rate from tuberculosis is 3.04 of the total reduction of 4.26 per thousand, and at age 32 it is 2.60 of the total of 4.45 per thousand reduction. This reduction in the tuberculosis death rate is indeed gratifying and corresponds closely to the reduction of the tuberculosis death rate among the general population and among the policyholders of insurance companies. What are the possibilities of further reduction of the tuberculosis death rate among the sisters during this important period of life of the sister? The answer to this can be found in the comparison of the death rates of "all" sisters with the death rates of the white females of the general population from all other causes of death including tuberculosis and from tuberculosis only.

Dr. William H. Davis, Chief Statistician of the U. S. Census Bureau has courteously furnished the writer with the tuberculosis death rate of the white females of the original registration area for the period 1901-1910 and 1919-1920. The periods 1901-1910 and 1919-1920 of the white females have been selected because life tables showing rates of mortality for all causes for this group have been compiled by the government for the two periods mentioned. The period 1901-1910 of the white females corresponds closely with the period 1900-1909 of "all" sisters in this investigation and the period 1919-1920 of the white females can be used with the period 1920-1924 of "all" sisters for comparative purposes. There are certain limitations applicable to each of the periods which one should keep in mind in comparing the respective death rates. That is, the white females of the period 1901-1910 have the advantage of the one year, 1910, of improved mortality in comparison with that of the sisters for the period 1900-1909, while the sisters 1920-1924 have the advantage of being observed for the better years after 1920 in comparison with the white females of 1919-1920.

In Table D are grouped the rates of mortality and expectations of life of the white females of the general population 1901-1910 and of "all" sisters 1900-1909 at quinquennial ages to age 62 years.

TABLE D

RATES OF MORTALITY AND EXPECTATIONS OF LIFE

Of White emales of the Registration Area
1901-1910 and of "All" Sisters, 1900-1909

	White Females[1] U. S. Census 1901-1910		"All" Sisters 1900-1909		
Ages	Death Rate per 1000	Expectation of Life in Years	Death Rate per 1000	Expectation of Life in Years	Ages
22	5.43	42.83	5.70	42.95	22
27	6.25	39.01	8.65	39.37	27
32	7.26	35.25	9.20	36.07	32
37	8.07	31.52	7.50	32.53	37
42	9.05	27.77	7.10	28.65	42
47	11.24	24.05	8.52	24.68	47
52	14.34	20.42	13.38	20.74	52
57	21.03	17.00	17.54	17.13	57
62	29.49	13.86	22.77	13.80	62

[1] From United States Life Tables 1890, 1901, 1910 and 1901-1910.

According to the figures above the rates of mortality of white females of the general population for the period 1901-1910 are considerably lower from age 22 to approximately age 35 (an age between the two quinquennial ages 32 and 37) than "all" sisters for the period 1900-1909, while the rates of mortality of "all" sisters are lower at all quinquennial ages thereafter. The expectation of life of the two groups are approximately the same at the select ages above with the exception of the quinquennial ages 32, 37, and 42 where "all" sisters have an advantage of nearly one year of additional life. The greatest difference in the expectation of life of the white females and "all" sisters is at age 37 years where the sisters have slightly more than one year of additional life. A re-examination of the death rates at age 27 years for the two groups reveals the fact that the sisters have a death rate of nearly 2.50 per thousand more than the white females. An analysis of the causes of death for the two groups at these ages should point out the underlying causes for the difference in the death rate.

In the table below are compiled the death rates from all causes; from tuberculosis (all forms) only; and from all causes excluding tuberculosis (all forms) for white females 1901-1910 and "all" sisters 1900-1909 at select ages.

TABLE E

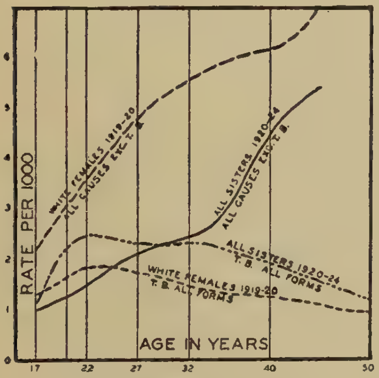
DEATH RATES PER 1000 FROM ALL CAUSES OF DEATH

From Tuberculosis (all forms) only; and from All Causes of Death excluding Tuberculosis (all forms) for the White females of the U. S. Census 1901-1910 and "All" Sisters 1900-1909 at Selected Ages.

	White Females			"All" Sisters			
Ages	Death Rate per 1000 all Causes	Death Rate per 1000 Tuberculosis	Death Rate per 1000 all Causes excluding Tuberculosis	Death Rate per 1000 all Causes	Death Rate per 1000 Tuberculosis	Death Rate per 1000 all Causes excluding Tuberculosis	Ages
22	5.43	2.37	3.06	5.70	3.12	2.58	22
27	6.25	2.61	3.64	8.65	5.34	3.31	27
32	7.26	2.46	4.80	9.20	4.94	4.26	32
40	8.54	2.01	6.53	7.04	3.17	3.87	40

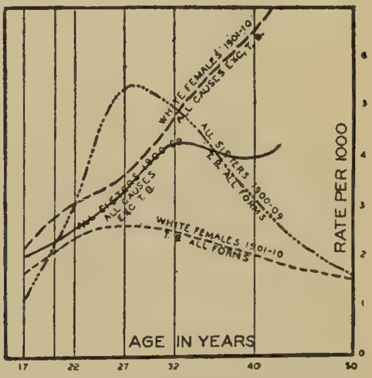
Comparing the figures in Table E it will be observed that the sisters have a considerably higher death rate from all causes of death than the white females at the quinquennial ages 22, 27 and 32 and the peak of the excess death rate is at age 27. This fact was pointed out in the last paragraph. But an examination of the columns headed "Death rate from all Causes of Death excluding Tuberculosis (all forms)" points to a lower death rate for the sisters at all ages. This means that the sisters showed a lower death rate from all causes of death other than tuberculosis than did the white females but that tuberculosis was the one factor during this life period for the observation period 1900-1909 which caused the sisters to have a general higher death rate than had the white females. The columns headed "Death Rate per 1000 Tuberculosis" in Table E verifies this statement.

Next to be noted is the improvement of the general health of "all" sisters from the early period 1900-1909 to the later one 1920-1924 of this investigation and have found that the reduction in the tuberculosis death rate was responsible to a great extent for this improvement. An examination follows of the relations of the white females of the general population to "all" sisters with respect to rates of mortality from all causes of death; to rates of mortality from tuberculosis (all forms) only; and rates of mortality from all causes of death excluding tuberculosis for the last five years of this investigation 1920-1924, to learn the possibilities of further reduction of the death rate of the sisters from tuberculosis.



Graph VI

Comparison of Death Rates
White Females of the U. S. Census
1919-20 and "All" sisters 1920-24



Graph VII

Comparison of Death Rates
White Females of the U. S. Census
1901-1910 and "all" sisters 1900-1909.

In the following table are grouped the rates of mortality from all causes of death; from tuberculosis (all forms) only; and for all causes of death excluding tuberculosis of the white females of the general population 1919-1920 and of "all" sisters 1920-1924 at selected ages.

TABLE F

DEATH RATE PER 1000 FROM ALL CAUSES OF DEATH

From Tuberculosis (all forms) only; and from All Causes of Death excluding Tuberculosis (all forms) for the White Females of the U. S. Census 1919–1920 and "All" Sisters 1920–1924 at Selected Ages.

	White Females			"All" Sisters			
Ages	Death Rate per 1000 all Causes	Death Rate per 1000 Tuberculosis	Death Rate per 1000 all Causes excluding Tuberculosis	Death Rate per 1000 all Causes	Death Rate per 1000 Tuberculosis	Death Rate per 1000 all Causes excluding Tuberculosis	Ages
22	5.42	1.83	3.59	4.00	2.48	1.52	22
27	6.53	1.72	4.81	4.39	2.30	2.09	27
32	6.97	1.43	5.54	4.75	2.34	2.41	32
40	7.33	1.22	6.11	6.42	1.90	4.52	40

According to the figures above "all" sisters have a considerably lower rate of mortality from all causes of death at all ages of this life period, with a higher rate from tuberculosis and again a correspondingly lower rate from all causes excluding tuberculosis than the white females of the general population. At age 27, for example, the death rate from all causes for the white femals is 6.53 while that of the sisters is 4.39 per 1000. In respect to tuberculosis (all forms) the white females have a rate of 1.72 as compared with the rate of 2.30 per 1,000 for the sisters, or an excess rate of 0.58 per 1,000 for the sisters. The death rate from all causes of death excluding Tuberculosis (all forms) at age 27 for the white females is more than twice as high as that for the sisters, the rates being 4.81 and 2.09 per 1,000 respectively.

In comparing the death rates from all causes of death excluding tuberculosis (all forms) of the white females with those of "all" sisters it is important to consider the make up of the two groups. Because the white female group contains both married and unmarried women while the sisters belong to the one class of celibates, the hazards of maternity have some influence on the greater death rate of the white females from age 20 to 40 years. The Bureau of the Census has furnished the writer with the rates of maternal mortality per 1,000 of the white females of the original registration area for the years 1919-1920 for the selected ages below.

TABLE G

DEATH RATE PER 1000 WHITE FEMALES

Of the Registration Area from Pregnancy and Confinement, 1919–1920

Ages	Per 1,000 Females
22	0.78
27	1.05
32	1.04
40	0.75

It will be observed that at the select ages above, the rate of maternal mortality is from 0.75 to slightly more than 1.00 per thousand for the white females. This means that the differences between the rates of mortality of the two groups from all causes excluding tuberculosis (all forms) when reduced to a comparable basis is not in reality as large as the figures in the Table F show. But even after making allowance for the rate of maternal mortality for the white females, the fact still remains that the sisters are subject to very low death rates from all causes of death excluding tuberculosis during this life period.

What, then, are the possibilities in the future of the further reduction of the death rate and of increasing the average length of life of the sisters in the United States? The facts just considered point out unmistakably the way to a further reduction in the death rate and the extension of the average length of life of the sisters. According to the causes of death here considered there is room for the reduction of the death rate from tuberculosis from 40 to 50 percent. If the tuberculosis death rate were reduced by 50 per cent for this life period of the sisters, 20 to 40 years, it would mean a saving of more than one life per thousand annually at every age of the period.

What influence has the tuberculosis death rate of the teaching sisters had upon the tuberculosis death rate and upon the general death rate of "all" sisters for the life period age 20 to 40 years for the last five years of the investigation?

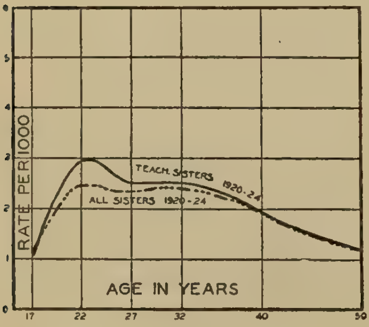
TABLE H

TUBERCULOSIS (ALL FORMS) DEATH RATE PER 1000

For Teaching Sisters and "All" Sisters
For Select Ages for the Period 1920–1924

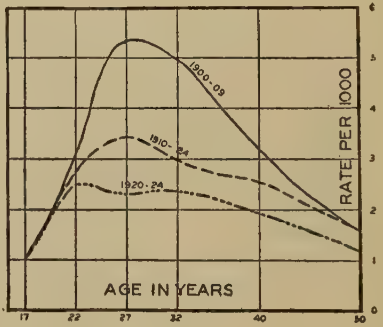
Ages	Teaching Sisters Rate per 1000	"All" Sisters Rate per 1000	Excess Rate of Teaching Sisters
22	2.96	2.48	0.48
27	2.50	2.30	0.20
32	2.52	2.34	0.18
40	1.92	1.91	0.01
50	1.18	1.17	0.01

Table H shows the relation of the tuberculosis death rate of the teaching sisters and "all" sisters for the period 1920-1924 for the select ages.



GRAPH VIII

Tuberculosis (All Forms) Death Rate



GRAPH IX

Improvement in the Tuberculosis (All Forms) Death Rate of "All" Sisters

According to this table the tuberculosis death rates of the teaching sisters are considerably higher at all ages during the life period 22 to 32 years than those of "all" sisters at the corresponding ages. In the light of this fact and with the examination of the distribution of occupations on Graph I, page 12, showing that more than 70 per cent of the total group at these ages are teaching sisters it will be apparent that the death rate from tuberculosis of the teaching sisters influenced the tuberculosis death rate and the general death rate of "all" sisters to a great degree.

APPENDIX A

An idea of the increase in the life expectation that has occurred during the last twenty-five years may be obtained from an address delivered before the Harvey Society of New York in 1922 entitled, "The Possibility of Extending Human Life," by Dr. Dublin. He states that during the period from 1901 to 1920 an increase of six years has been added to the life expectation at birth in the Registration States of the United States. In the same address he continues, "Possibly, the most encouraging result has been obtained among insured lives, where a definite effort has been made to extend the life span. In 1909, the Metropolitan Life Insurance Company began an active campaign of health education among its millions of industrial policyholders . . . . . there was an increase of eight and one-half years in the expectation at birth for these insured lives." It is true that much of this increase in the expectation of life of the two groups mentioned is due to a great extent to the saving of lives of infants, for the reduction in infant mortality from 1900 to 1920 has added about four years of the total increase of life expectation. But at the same time the reduced mortality in the adult and middle life spans is pronounced and emphasizes the fact that the efforts to control tuberculosis, typhoid fever, and the mortality from occupational and other accidents have shown results. The following table shows the increase in life expectation for adult and middle life in years at selected ages for white females of the Original Registration States between the period 1901-1910 and 1919-1920.

LIFE EXPECTANCY IN ADULT AND MIDDLE LIFE
Of White Females in Registration Area
1901–1910 1919–1920

	Expectation of Life		
Ages	1901–1910[1]	1919–1920[2]	Increase in Years
22	42.83	44.21	1.38
32	35.25	36.77	1.52
42	27.77	29.11	1.34
52	20.42	21.43	1.01

According to this table there was at age 22 years an increase of 1.38 years in the life expectancy from the period 1901-1910 to 1919-1920 at age 32, 1.52 years etc.

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[1] From United States Life Tables 1890, 1901, 1910 and 1901–1910.
[2] From United States Abridged Life Tables 1919–1920.

APPENDIX B

According to a report, "Physical Disability of New York City School Teachers" by Dr. Louis I. Dublin, issued 1916, taken from the periodical, School and Society, October 7th and October 14, 1916, school teachers are subject to especially low death rates. The report continues, "They share with clergymen the distinction of having the most favorable mortality in a list of representative occupations." That is extremely interesting from the pen of an authority and one who made an investigation of the New York City school teachers for the school year 1914-1915. The report of this investigation in respect to the death rate of teachers is as follows, "There were 74 deaths registered in the school year 1914-1915 in our series. This number includes deaths occurring among teachers on the active list as well as those on leave of absence. In relation to the total number of teachers exposed, the crude death rate is 3.6 per 1,000, at all ages. The rate is extremely low when the average age of the teacher is considered." These figures of Dr. Dublin are confirmed by the statistics prepared by the Mayor's Commission on Pension Funds of New York City. The table of rates of death of teachers of the Mayor's Commission on Pension Funds of New York City was based on the teachers employed in the New York City schools for the six year period 1908-1914 inclusive, and developed by William A. Hutcheson, Actuary of the Mutual Life Insurance Company, and John S. Thompson, Consulting Actuary. During the period of six years a total of 362 women and 56 men died in active service or a total of 418.

The following table shows the death rates for female teachers of the City of New York as shown in the Report on the Pension Funds of the City of New York, Part II, Page 100.

Thus at age 20 years 1.3 died per 1000. At age 25 the death rate increased to 2.3 per 1000, etc. The figures in the table below show that the mortality of women teachers is very low at all age periods. Reviewing the Annual Reports[2] of the Teach-

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[2] From the First to the Ninth Annual Report of the Retirement Board of the Teachers' Retirement System of the City of New York, 1917-1925.

[1] RATES OF SEPARATION OF WOMEN TEACHERS
By Deaths from Active Service
In the New York City Schools
1908–1914

Age	Mortality Rates Per 1000	Age	Mortality Rates Per 1000
20	1.3	51	8.0
21	1.4	52	8.5
22	1.6	53	9.1
23	1.8	54	9.7
24	2.0	55	10.4
25	2.3	56	11.2
26	2.5	57	12.0
27	2.8	58	12.9
28	3.0	59	13.9
29	3.2	60	15.0
30	3.3	61	16.2
31	3.4	62	17.5
32	3.5	63	18.9
33	3.6	64	20.4
34	3.6	65	22.1
35	3.6	66	24.0
36	3.7	67	26.0
37	3.9	68	28.2
38	4.2	69	30.6
39	4.2	70	33.2
40	4.4	71	36.1
41	4.6	72	39.2
42	4.8	73	42.6
43	5.0	74	46.3
44	5.3	75	50.3
45	5.6	76	55.6
46	5.9	77	63.1
47	6.2	78	73.7
48	6.6		
49	7.0		
50	7.5		

ers' Retirement Board of the Teachers' Retirement System of the City of New York from 1917 to 1925 on the actual working out of the system for these years, one sees that the number of actual deaths for these years was similar to the expected deaths with some slight fluctuations which were not sufficient to indicate a necessity for a change in the basic rates. It will be noted in comparing the rates of mortality of the women teachers of New York City with those of any group recorded for any other occupation, that the death rates of the women teachers are consistently lower at all ages.

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[1] From Report on the Pension Funds of the City of New York, Part II, Page 100.

APPENDIX C

MORTALITY OF MARRIED AND UNMARRIED.

The few available statistics of monks and nuns in the past have been invariably linked with the relation of the rate of mortality of women with that of the men and with the relation of the rate of mortality of the married with that of the unmarried. The subject of celibacy and its relation to longevity gained the attention of writers as soon as sufficient statistics were available for comparison. William Farr considered the relation of the rates of mortality of married and unmarried people in France and according to the table quoted on page , showed that the unmarried women had a lower death rate than the married during the age period 20-25; a similar rate from 25-30, and a higher rate than the married for all ages thereafter.

Another report which was issued about 1863 by Dr. James Stark to the Registrar-General of Births, Deaths and Marriages in Scotland regarding the mortality of married and unmarried women in Scotland during the years 1861-1862 substantiates the findings of William Farr.

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[1] MORTALITY OF MARRIED AND UNMARRIED
WOMEN IN SCOTLAND 1861–1862

Age Period	Annual Death Rate per 1000 Spinsters	Married
20–25	7.8	9.1
25–30	8.6	9.3
30–35	10.1	9.5
35–40	12.0	11.1
40–45	11.2	11.3
45–50	14.8	12.9
50–55	17.5	14.8
55–60	22.3	20.5
60–65	29.9	27.4
65–70	47.5	44.6
70–75	71.7	65.2

Thus the table shows tha tat the age period 20-25 there was a yearly death rate of 7.8 per thousand of single women while out of a similar group of married women the annual death rate was

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[1] From Scotland Census 1871, Vol. II.

9.1. But at the age period 30-35 the rate is reversed and the spinsters have a higher yearly death rate. Therefore, here again the higher death rate of the married women is confined to the ages under 30 years, except at the age period 40-45 where the mortality of the married slightly exceeds that of the unmarried.

Both of these reports are in full harmony with the more recent report[2] of Professor Walter F. Willcox of Cornell University on the mortality of married and unmarried women in the state of New York. This investigation is based on the population and deaths of New York State outside of greater New York City and Buffalo for 1909, 1910 and 1911. The following table shows the death rate for females per 1000 of married, single, and widowed and divorced.

According to the figures here given the death rate among married women, except during the one age group 20-29, is lower than that of single women of the same age. The high death rate suffered by the married women according to Professor Willcox is probably explained to some extent by the greater danger to life, incurred by most mothers during this period by the birth of their first child. The difference in the death rate is not very large, that of the married being 5.7 and that of single being 4.7 per thousand.

[3] ANNUAL DEATH RATE PER 1000 FEMALES

In the State of New York Excluding Greater New York City and Buffalo for 1909, 1910, and 1911.

Age Period	Single	Married	Widowed & Divorced
20–29	4.7	5.7	9.4
30–39	7.4	6.3	9.5
40–49	10.0	8.2	12.1
50–59	19.9	14.4	18.8
60–69	37.1	28.1	38.2
70–79	82.2	61.4	87.2
80 and over	279.8	194.8	268.9

But still more recent reports, both in this country and in England, indicate that the difference between the rates of mortality of the two groups are not as significant as in the past. The report of the Registrar-General in the Supplement to the 75th Annual Report of the Registrar-General of Births, Deaths and marriages in England and Wales on the mortality of single, married and widowed, based on the deaths of the females during the period 1910-1912 in England and Wales, shows the married to have a higher death rate from 25 to 40 (no rate given at age 20 for married women) as compared with the earlier reports based on the age form from 20 to 30. The excess of the death rate for the married during this age period, according to the report, is chiefly attributable to the risks of maternity. From 40-80 there is practically equality of mortality in married and in single women. The expectation of life is higher for the spinsters at practically all ages. This report of the mortality of women in England and Wales finds support in another by Dr. J. C. Dunlop in the Transactions of the Faculty of Actuaries with respect to the longevity of married and single women in Scotland based on the Scottish life tables for 1921. According to the Statistical Bulletin, Metropolitan Life Insurance Company March 1925, which summarizes the report of Dr. Dunlop, the spinster at age 25, if she remains single, seems to have a slight advantage (three months) of additional life, as compared with her married sister. The report continues, "This difference is so small that we might perhaps feel somewhat doubtful regarding its significance. Dunlop, however, has carried the inquiry a little further, to examine how far the observed advantage of the spinster may be attributed to her escape from the risks incidental to pregancy and child birth. When allowance is made for deaths referable to these it is found that, in Scotland, in the period under discussion, the married woman had an expectation of life of 43.4 years as compared with 42.8 years for the spinster, an advantage of something over half a year. There is a certain plausibility about these figures, which inclines one to regard the difference as probably significant, although it is rather small."

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[2] A report to the State Department of health of New York in the Monthly Bulletin of Health, May 1913.

[3] From Monthly Bulletin of the State Department of Health of New York, May, 1913.

In 1915 the Medico-Actuarial Mortality Investigation Committee[4] made an investigation showing the comparative mortality of the married and unmarried women based upon the experiences of forty-three life insurance companies in the United States and Canada from 1900-1915.

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[4] This Committee consisted of five actuaries of State Insurance Departments appointed by the National Convention of Insurance Commissioners.

According to George I. Bliss in the Bulletin of the American Statistical Association of March, 1918, this report shows a lower mortality for spinsters than for married women, excluding widowed and divorced women, at every age group, the average difference for all ages being 38 per cent in favor of spinsters. But this finding is qualified by the further statement, "The favorable mortality of the spinsters as compared with the married women deduced from insurance statistics, however, is not characteristic of the class in the general population. The great majority of spinsters insured by the companies were teachers, stenographers, librarians, and other similarly favorable types. Only a small proportion of them were employed as saleswomen in the stores or were engaged in factory work."

In reviewing the history of the statistics of the relative longevity of married and single women, these later reports lead one to believe that the difference in the longevity of married and of single women is becoming more and more insignificant and that the status of the single woman with respect to death rate and expectation of life has been greatly improved. These reports seem to point to the fact that the two groups, single and married, excluding widowed and divorced women, have nearly the same rate of mortality at all ages with the exception of the age period from 20-40 where the death rates of the married are higher, chiefly because of the risks of maternity.

The results of the investigation of the longevity of sisters in the United States support these later findings, that is, the death rate of the sisters is not higher but as a whole lower throughout the entire period of life than the death rate of the white females of the general population, which is made up of both married and unmarried women. It is true that the sisters as a group, similar to the select group of the insurance companies, are not a characteristic or representative group of the single women of the general population.

APPENDIX D

THE QUESTIONNAIRE

The Catholic University
Dept. of Economics

LONGEVITY OF MEMBERS OF RELIGIOUS ORDERS

1 (a) Name.................................or (b) Number..........
(¹)See note below

2 Date of birth.......................................
Month Year

3 [2] Entered the Order...................................Age nearest birthday....
Month Year

4 Occupation
In Order
Check one
Teacher ☐
Nurse ☐
Supervisor ☐
Domestic ☐
Outdoor Work ☐

5 [3] Major portion of convent life spent in
Northern States ☐
Southern States ☐
Western States ☐

6 If dead; Date of death.................................Cause of death..............
Month Year Disease

Remarks ....

Continue on other side of sheet

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[1] The questionnaire is not to be filled out for members who entered and withdrew. If more convenient to designate the sister by a number than by name fill 1 (b)

[2] Indicate here the date when the member became a candidate, aspirant, or postulant for entrance in the Order.

[3] *Northern States*: Me., N.H., Vt., Mass., R.I., N.Y., Conn., N.J., Pa., Ohio, Ind., Ill., Mich., Wis., Minn., Iowa, Mo., N.D., S.D., Neb., Kan.

Southern States Del., Md., D. of C., Va., W.Va., N.C., S.C., Ga., Fla., Ky., Tenn., Ala., Miss., Ark., La., Okla., Tex.

Western States: Mont., Idaho, Wyo., Col., N.Mex., Ariz., Utah, Nev., Wash., Ore., Cal.

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VITA

Constantine John Fecher, son of Peter and Anna Fecher was born February 15, 1897 at Fort Recovery, Ohio. After attending the St. Wendelin Elementary School at Fort Recovery he completed a high school course in the Academic Department of St. Joseph's College, Collegeville, Indiana. He entered Miami University, Oxford, Ohio, in 1914 where he remained one year. Later he taught in the schools of his native state for six years, this period being interrupted by one year's service in the army during the World War. In September 1922 he reentered Miami University receiving the A. B. Degree in June 1924. In that year he was awarded a Knights of Columbus Scholarship at the Catholic University of America where he pursued graduate work in the School of Philosophy, taking his major work in Economics under Dr. Frank O'Hara and his minors in History under Dr. Peter Guilday and Dr. Charles H. McCarthy and in Sociology under Dr. William J. Kerby.

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